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ABSTRACT

To determine the relative levels of achievement of students enrolled in courses designed to permit individualized instruction and to determine those courses or instructional aspects considered effective or ineffective in achieving objectives, achievement data on 1,204 students within the post-secondary institutes of the Wisconsin vocational education system were gathered from school records, and background data were obtained by questionnaire. Critical incidents were obtained through personal interviews with 224 students and 28 teachers. Analyses were performed contrasting student achievement and the critical incidents across subject areas, across technical school districts, within separate subject areas, and across five models of individualized instruction and four class scheduling patterns. Some principal findings were: (1) Higher grades and fewer course incompletes or withdrawals were received by students who possessed these characteristics, previous experience in the subject, high school graduation, and enrollment in an associate degree program; and (2) Course characteristics which were most effective included student-pacing of their own programs, use of pretesting to place students within a course, student selection of special study topics, and use of different types of testing procedures. (Several pages may be light.) (SB)

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FINAL REPORT

Project No. 19-008-151-222

AN EVALUATION THROUGH FIELD TESTING OF INDIVIDUALIZED INSTRUCTION MATERIALS IN WISCONSIN POST-SECONDARY INSTITUTES

August, 1972

THE UNIVERSITY OF WISCONSIN
MADISON

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
Madison, Wisconsin

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Final Report

Project No. 19-008-151-222

AN EVALUATION THROUGH FIELD TESTING OF INDIVIDUALIZED INSTRUCTION MATERIALS IN WISCONSIN POST-SECONDARY INSTITUTES

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August 7, 1972

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ABSTRACT

TITLE: AN EVALUATION THROUGH FIELD TESTING OF INDIVIDUALIZED INSTRUCTION MATERIALS IN WISCONSIN POST-SECONDARY TECHNICAL INSTITUTES

AGENCIES: Wisconsin Board of Vocational, Technical and Adult Education, Madison, Wisconsin
(Project No.: 19-008-151-222)
The University of Wisconsin, Madison, School of Education, Department of Curriculum and Instruction
(Project No.: 144-C319)

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OBJECTIVES:
1. To determine the relative levels of achievement of students enrolled in courses designed to permit individualized instruction.
2. To determine those course or instructional aspects which students and teachers considered to be particularly effective or ineffective in permitting the achievement of course objectives.

PROCEDURES: Within the post-secondary technical institutes of the Wisconsin Vocational, Technical and Adult Education system, 23 business courses were evaluated during the fall of 1971. These courses included the following subject areas: accounting (2 classes), business mathematics (2 classes), marketing (4 classes), beginning shorthand (3 classes), advanced shorthand (2 classes), and typewriting (10 classes).

Two basic types of student achievement data were collected: (1) their grades in a course at the end of the semester, or their status as "Incomplete" or "Withdrawn"; and (2) the teacher's categorization of a student with respect to his achievement in an individualized course (positive, neutral, or negative). These data were available for 1204 students. Other various types of background data were also collected by questionnaire for each student.

PROCEDURES: (Con.)

Critical incidents were obtained through personal interviews with 224 students and 28 teachers. A total of 1226 incidents were reported by students and 378 incidents by teachers. These incidents were analyzed and categorized into eight main critical incident groups.

The student achievement data and critical incident data were all analyzed through the use of chi-square tests of contingency. Analyses were performed contrasting student achievement across subject areas, across technical school districts, within separate subject areas, and across five models of individualized instruction and four class scheduling patterns which described the courses. Student achievement was also contrasted with the various student background characteristics. The analysis of critical incidents followed a similar pattern of contrasts: across subject areas, across technical school districts, within separate subject areas, and across five models of individualized instruction and four class scheduling patterns which described the courses. Also included in the critical incident analysis was a comparison of the incidents reported by students and teachers.

PRINCIPLE FINDINGS:

While student achievement varied across subject areas and schools, the number of "Incomplete" course grades suggested the need for further investigation to determine the final completion status of many students. In 16 of the 23 courses, 60 percent of the students or less had completed the course by the end of the semester. In six of the classes, approximately one out of five students had completed the course requirements within one semester.

Higher grades and fewer course "Incompletes" or "Withdrawals" were found to be received by students with the following chacteristics: they had had previous experience in the same subject; they were in the two-year Associate Degree program; they were high school graduates; they had, in some instances, attended other educational institutions since high school; and, with respect to higher grades, they were taking a course directly related to their academic major. Age was not related to course achievement. Further, students taking fewer courses or who were not employed outside of class were not observed to have any particular advantage that would cause them to receive higher grades.

The critical incident analysis showed students to be more favorable in their attitude toward the individualized courses than were teachers. The majority of critical incidents, however, was of effective class events for both students and teachers. Those class characteristics which were most effective changed across subject areas, individualized instructional models, and scheduling patterns.

PRINCIPLE FINDINGS: (Con.)

Those course aspects or characteristics which were most effective, however, included the following: student-pacing of their instructional progress; the use of pre-testing to place students within a course; the choosing by students of special topics for study; the availability of the teacher when necessary for extra assistance; the use of materials designed specifically for individualized instruction; major teacher participation in the development of the individualized course; the use of different types of testing procedures within a class rather than just one type; the opportunity for group activities within a course as well as independent student progress; and the existence of a sufficient quantity of properly operating equipment when necessary.

MAJOR RECOMMENDATIONS:

The continued development of individualized instructional materials for business courses in the Wisconsin post-secondary technical institutes should be encouraged. This development, however, should go beyond the provision of just student-pacing. It should also include more opportunity for student selection of alternative instructional routes or materials directed toward the same learning objective.

When these materials are to be used primarily within an open-laboratory situation, the professional staff in this laboratory should be such as to provide ample opportunity for student-teacher contacts. The solution of the staffing issue within open-laboratory courses requires further definition of the role of the paraprofessional as an assistant to certified instructors.

Continued investigation or special provisions should be directed toward those differences in students which are related to their previous background in a subject and their programs of enrollment in the technical schools.

Since the initial preparation of individualized instructional materials has been an especially time-consuming task for teachers, continued support should be provided in the way of released time for this work, as well as extra compensation for special projects. Further, greater attention should be directed toward the sharing of materials, evaluation instruments and course experiences among Wisconsin technical institutes.

PART I
INTRODUCTION

Background of the Study

In the past several years the Business Divisions of the Wisconsin Vocational, Technical and Adult Education institutes have given increased attention to the question of whether more individualized methods of instruction should be used in their courses. While this concern for individualized instructional techniques has not been limited to the Business Divisions, the size and expanding enrollments in this area and the commitment here to newer instructional techniques through the development of new materials and the purchase of mechanical instructional aids have prompted the particular interest of this study.

The assumptions in any program of individualized instruction generally have included the following: students learn subject matter at different rates and in varied ways; they are capable of being self-directed; and students can learn individually. In setting up instructional sequences which permit such possibilities as these, it is anticipated that the vocational needs of students will be better served. They may have a wider selection of courses or topics of study from which to choose. They may be able to start an instructional sequence at any number of places, thus taking advantage of any background in the subject which they may have acquired previously. They may enter programs at times convenient to them, and not necessarily only at the beginning of the fall or spring semester. They may, thus, complete programs or courses at irregular time intervals. As another beneficial outcome, it is also expected that in an individualized situation the teacher will be able to fulfill an instructional role more appropriate to his capabilities -- the diagnosisof instructional problems and the assisting of students at those points at which he needs the direct assistance of a teacher.

Purpose of the Study

Several business courses now operate on the basis of the assumptions stated previously and with the expectation that such variable outcomes as were reviewed above may result. It was the intention of this research project to investigate and evaluate selected courses now using such techniques to determine the practical strengths and weaknesses of such ongoing and developing course organizations.

Several teachers have been encouraged to develop their own course materials and to arrange their own course to allow for more individualized student progress. Have the results of these reorganizations been such as to encourage continued effort in this direction? Are there some guidelines which may be drawn from the experiences of particular schools and vocational-technical institutes which may assist others as they contemplate moving in this same direction?

The questions which could be raised with respect to individualized instructional efforts in any subject area can range across a wide spectrum from the theoretical basis for such instructional techniques to a follow-up of long-term student accomplishments. In between these two extremes, the primary purpose of this project was to examine selected business courses which have already been established on an individualized basis and evaluate the effectiveness of such course organization from two view points:

1. What are the student accomplishments in selected courses when they are allowed to proceed through an instructional sequence at their own pace?

2. What observable aspects of the courses may be identified by students and by teachers as being particularly effective or particularly ineffective in conveying to students that subject-matter content which they sought?

Significance of the Study

Answers to such questions as the two raised above are intended to provide, first, comparative student accomplishment data for similar or contrasting individualized instructional situations. Secondly, by detecting those aspects in these operational situations which have been either particularly desirable or particularly ineffective, a position of tangible evidence will exist for others by which they may judge those instructional options which they might likewise make available or which they should seek to avoid.

The magnitude of the cost to teachers and to the Wisconsin Vocational - Technical districts both in time and in money in revising existing courses or in developing new ones to permit more individualized instruction is such that every effort should be made to share or profit from the experiences of those who have already undertaken such costs. Such a sharing of the experiences in on-going situations is a very pragmatic approach to an evaluation of the efforts to develop individualized instructional programs. It does not seek to provide answers to the very basic questions of how students learn or the effects of different instructional approaches on learning outcomes.

Before such questions as these can be asked in the specific framework of the Wisconsin Vocational-Technical Institutes, it is necessary first that the bridge from the more traditional classroom organization to the individualized, more open and flexible instructional situation be crossed. Until it can be satisfactorily demonstrated that the individualized, student-controlled situation can be a viable and operational alternative to the group-oriented approach, a more penetrating examination of the individualized alternatives which may be available is not possible. The marked transition required for both teachers and students to a pattern of instruction which is different from accustomed class

organizations might be made more easily when it has already been demonstrated in similar situations that such a transition would be best to include or avoid selected options. It is such a practical evaluation and possible guidelines which were sought in this project.

Design of the Study

Two major types of data were collected with the purpose of evaluating 23 selected classes covering seven business subject areas. The first sought to determine the completion status at the end of one semester for each student in the course. Also collected in association with the completion status were certain background characteristics, such as a student's major, the program in which he was enrolled, whether he was a high school graduate, and whether he had previously had experience in the same subject in which he was now enrolled.

The second type of data were critical incidents obtained from both students and teachers in the 23 courses using a form of individualized instruction. These incidents were events singled out by a student or a teacher which they considered to be examples of either particularly effective or particularly ineffective aspects of the individualized course. The analysis of both of these types of data is explained more fully later in the section entitled Methods and Procedures.

Limitations of the Study

In evaluating selected business courses which were currently using a form of individualized instructional procedures, an effort was made to examine these courses solely as they had been organized by the respective teachers. Because of this examination of on-going courses, or the omission of any formal experimentation, the following limitations should be recognized:

1. There were no control classes in operation against which any of the individualized classes could be compared. Any comparison by teachers with what could be considered the traditional way of teaching a given subject was based on their previous experiences with the same course as it was taught before being individualized.

2. Because only 7 of the 23 classes in this study used a form of pretesting and student placement, it was not possible to compare student end-of-the-semester progress with a previous test score in the same area. Even those classes which did use a pretest did not re-administer the same test as a final course measurement.

3. Course achievement, or satisfactory completion of a given individualized subject, was based on a student's successfully meeting the objectives established for a course. Those stu-

dents who were not able to satisfactorily complete these objectives, were, in most classes, permitted to continue the course work beyond one semester.

4. While it is anticipated that the findings of this study involving 23 selected business courses will have application to similar courses in other technical institutions in Wisconsin, the specific findings may not be generalized beyond the students in these 23 situations. The courses themselves were not a random sample from the individualized instructional programs in Wisconsin technical institutions.

5. The 23 classes which have been used here as the basis for an evaluation of individualized instructional procedures, could not be considered a complete representation of the business courses in Wisconsin Vocational, Technical, and Adult Education system which have been individualized. These subjects were chosen as representing several subject areas and several different approaches to the individualization of a course; they do not include many other business courses which have been individualized. The necessity of visiting these courses as often as possible also limited the number which could be included in this follow-up.

Delimitations of the Study

The findings of any study are subject to the restrictions that they apply to those schools and classes from which the data were collected. Correspondingly, the following delimitations are made:

1. The findings of this study are delimited to the participating post-secondary schools and to the specific business courses within these institutions. The following were the ten districts and the twelve different schools of the Wisconsin Vocational, Technical, and Adult Education system which participated in this study:

   District 3 - Southwest Wisconsin Vocational-Technical School, Fennimore

   District 4 - Madison Area Technical College, Madison

   District 5 - Blackhawk Vocational-Technical School, Beloit
   Blackhawk Vocational-Technical School, Janesville

   District 6 - Kenosha Technical Institute, Kenosha

   District 8 - Waukesha County Technical Institute, Waukesha-Pewaukee

   District 9 - Milwaukee Area Technical College, Milwaukee

District 10 - Moraine Park Technical Institute, Fond du Lac

District 11 - Lakeshore Technical Institute, Sheboygan
Lakeshore Technical Institute, Manitowoc

District 12 - Fox Valley Technical Institute, Appleton

District 15 - North Central Technical Institute, Wausau

2. Within the ten districts enumerated above, five main subject areas in business were included. The subject areas were accounting, business mathematics, marketing, shorthand, and typewriting. These courses in different schools included students enrolled in two-year associate degree programs, and one- and two-year vocational diploma programs. The initial enrollment in the 23 classes included in this study was 1206. Of this number, data were available for 1059 for the final analysis. In these 23 classes, there was a total number of 28 different teachers involved in the instruction.

PART II

METHODOLOGY

Selection of Courses for Follow-up

Since it was not possible to include all of the business courses in the Wisconsin Vocational, Technical, and Adult system which had been organized by the fall of 1971 utilizing a form of individualized instruction, it was necessary to select those which had been considered representative of the most innovative instructional procedures. To exclude other courses was not a judgment of their importance or of the difficulties encountered when any course is reorganized to permit a different instructional approach. Those courses which were chosen represent subjects in which some of the greatest effort and resources are now being directed with respect to individualized instruction, such as typewriting, and also such subject areas where little attention has thus far been given, such as some of the areas of marketing. Table I summarizes the courses offered in the fall semester of 1971 which were a part of this follow-up and evaluation.

The data for this study were, therefore, collected from 23 classes grouped in the following categories: typewriting, 10 classes (to be further classified as using a textbook or an audio-visual-tutorial approach); shorthand, 5 classes (including both beginning and advanced classes); accounting, 2 classes; business mathematics, 2 classes; and marketing, 4 classes. All of the students in these courses were "day" students, most of them full-time students.

While in some schools the field-services students (generally "evening" students) and students in special programs (such as MDTA and WIN) used the same facilities as the regular "day" students, these students were not included in the follow-up and evaluation. Although some of these field-service and special students were attending some of the "open lab" classes during the day because of the accessibility of these facilities, it was not considered appropriate to combine these students with the regular day-time enrollment.

TABLE I

Courses Included in the Evaluation of Individualized Instructional Situations

District and School	Course Name and Number
No. 3 Southwest Wisconsin Vocational-Technical School, Fennimore	Business Mathematics (804-302) Business Accounting I (101-311)
No. 4 Madison Area Technical College, Madison	Salesmanship (104-310) Typewriting II - Legal (106-133)
No. 5 Blackhawk Vocational-Technical School - Beloit	Typewriting I and II (106-131, 106-133, 106-331, 106-333)
Blackhawk Vocational-Technical School - Janesville	Typewriting I and II (106-331, 106-333)
No. 6 Kenosha Technical Inst.	Marketing Display (104-119)
No. 8 Waukesha County Technical Institute, Waukesha,-Pewaukee	Typewriting I and II (106-131, 106-133, 106-331, 106-333) Non-Textiles (Marketing) (104-121) Fashion Fabrice (Marketing) 104-117)
No. 9 Milwaukee Area Technical College, Milwaukee	Beginning Typewriting (106-131) Beginning Shorthand (106-205) Accounting (101-301, 101-311, 101-313) Business Mathematics (R Bus. 300, R Bus. 301, R Bus 302)
No. 10 Moraine Park Technical Institute, Fond du Lac	Typewriting I and II (106-131, 106-331, 106-333)

TABLE I (cont'd)

District and School	Course Name and Number
No. 11 Lakeshore Technical Institute, Sheboygan	Typewriting I and II (106-131, 106-133, 106-331, 106-333, 106-360, 106-362, 106-364) Shorthand I (106-111) Shorthand III (106-115)
Lakeshore Technical Institute, Manitowoc	Typewriting I, II, and III (106-131, 106-133, 106-135, 106-331, 106-333, 106-335) Shorthand I (106-111, 106-311) Shorthand II and III (106-113, 106-115, 106-313, 106-315)
No. 12 Fox Valley Technical Institute, Appleton	Typewriting I and II (106-128, 106-131, 106-340, 106-341)
No. 13 North Central Technical Institute, Wausau	Typewriting for Printers (106-320)

Categories or Models of Individualized Instruction

In order to facilitate the analysis and allow comparison among the different classes,[1] all 23 of the classes were characterized by two methods. First, by the type of individualized instructional approach which was being used; and, secondly, by the class scheduling pattern used.

An individualized course may be developed in a wide variety of ways depending upon the subject matter of the course, the materials and facilities available, and the time and resources available to the teacher. To permit comparison among the different classes and the different subject areas, the 23 classes included in this study were categorized into five broad approaches to individualized instruction. Each of these categories represented a gradual progression of increasing options available to students in an individualized situation and were not related to any particular subject matter or materials. These five categories were developed after the investigator had observed all of the courses and were based initially on the categories presented by Cronbach. (1967) These five categories are listed below:

1. Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels. (13 classes)

2. Objective to develop student to designated criteria by altering the duration of instruction. Fixed track; initial pre-testing and placement at a variety of levels. (6 classes)

3. Objective to develop student to designated criteria by altering the duration of instruction. Fixed track; initial pre-testing and placement at various levels. Integrated remedial adjuncts to a fixed "main track" instructional sequence. (1 class)

4. Objective to develop student to designated criteria with provisions for student selection of course-unit progression. Duration of progression flexible. (2 classes)

5. Objective to develop student to individually selected criteria and the use of different instructional sequences for each. Pre-testing and placement are incorporated into the construction of the instructional sequence. (1 class)

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[1]The instructional materials and procedures in each one of these 25 classes are described more completely in the Appendix of this report.

Table II

Courses Included Within Each of the Five Individualized Instructional Models

Model No.	Courses	V.T.A.E. District and School Location
1	Business Mathematics	No. 3, Fennimore
	Business Accounting I	No. 3, Fennimore
	Salesmanship	No. 4, Madison
	Typewriting II - Legal	No. 4, Madison
	Typewriting I and II	No. 5, Beloit
	Typewriting I and II	No. 5, Janesville
	Fashion Fabrics (Marketing)	No. 8, Waukesha
	Typewriting I and II	No. 8, Waukesha
	Accounting	No. 9, Milwaukee
	Beginning Shorthand	No. 9, Milwaukee
	Shorthand I	No. 11, Sheboygan
	Shorthand III	No. 11, Sheboygan
	Shorthand I	No. 11, Manitowoc
2	Business Arithmetic	No. 9, Milwaukee
	Typewriting I and II	No. 10, Fond du Lac
	Typewriting I and II	No. 11, Sheboygan
	Shorthand II and III	No. 11, Manitowoc
	Typewriting I and II	No. 12, Appleton
	Typewriting for Printers	No. 15, Wausau
3	Typewriting I, II, and III	No. 11, Manitowoc
4	Marketing Display	No. 6, Kenosha
	Non-Textiles	No. 8, Waukesha
5	Beginning Typewriting	No. 9, Milwaukee

Scheduling Patterns Used in the Individualized Courses

In any individualized course, the availability of instructional facilities has been assumed to have a marked effect on the flexibility allowed to the students. The ease with which they may use equipment and materials and receive extra assistance from the instructor are all affected by the scheduling of the class activities. The 23 courses followed up in this project used a variety of scheduling patterns which might have affected the progress of the students or their attitudes toward the course. For comparative purposes, these scheduling arrangements have been categorized according to the following four main options.

1. All classes scheduled to meet at a designated time (10 classes)

2. Some classes scheduled to meet at a designated time; some classes released for independent student work. (3 classes)

3. All classes scheduled to meet at a designated time; laboratory facilities available for extra course work in addition to the scheduled class. (4 classes)

4. No classes scheduled; all work completed in an open laboratory at a time chosen by the student. (6 classes)

Table III summarized the specific courses which were included in each of the four scheduling patterns.

TABLE III
COURSES INCLUDED WITHIN EACH OF
FOUR SCHEDULING PATTERNS

Schedule Pattern No.	Courses	
1	Business Mathematics	No. 3, Fennimore
	Business Accounting	No. 3, Fennimore
	Typewriting II - Legal	No. 4, Madison
	Non-Textiles	No. 8, Waukesha
	Fashion Fabric (Marketing)	No. 8, Waukesha
	Beginning Typewriting	No. 9, Milwaukee
	Accounting	No. 9, Milwaukee
	Business Mathematics	No. 9, Milwaukee
	Beginning Shorthand	No. 9, Milwaukee
	Typewriting for Printers	No. 15, Wausau
2	Salesmanship	No. 4, Madison
	Typewriting I and II	No. 8, Waukesha
	Shorthand I	No. 11, Manitowoc
3	Marketing Display	No. 6, Kenosha
	Typewriting I and II	No. 10, Fond du Lac
	Shorthand I	No. 11, Sheboygan
	Shorthand III	No. 11, Sheboygan
4	Typewriting I and II	No. 5, Beloit
	Typewriting I and II	No. 5, Janesville
	Typewriting I, II, and III	No. 11, Sheboygan
	Shorthand II and III	No. 11, Manitowoc
	Typewriting I, II, and III	No. 11, Manitowoc
	Typewriting I and II	No. 12, Appleton

Evaluation Techniques

Two main methods were used to evaluate the progress of the students in the individualized courses and the aspects of these courses which were particularly favorable or unfavorable from the students' and the teachers' view points. For convenience of reference, the first analysis has been identified as an analysis of student background and completion data. The second analysis has been identified as a critical incident analysis. Each will now be described briefly.

1. Student Background and Completion Analysis

(a) Determination of Student Achievement or Completion Status

It is considered essential in an evaluation of any of the individualized courses that the accomplishments of the students be examined according to their achievement of the specified course objectives. This achievement was to be determined, however, through the use of the measurement device or techniques which the teachers were already using in their respective courses. Measurement instruments were not introduced in this project which were in addition to those normally used in these courses.

In order to permit a comparison among different classes, course completion was recorded according to the grading device used by the individual teachers, or the letter grades assigned at the end of one semester. The description of the specific accomplishment of those students who received the various letter grades must be surmised from the description of the course objectives or the grading scale, where available.[2]

The completion status of students in all of the individualized courses fell into three basic categories. First, those who completed the course before or at the end of one semester received a letter grade. Generally these grades ranged from A, B to C. In a few instances the grade of "D" was also used. No F's were assigned in any of the classes since a student who did not complete a course was to be permitted extended time to do so. In a few courses where extended time periods were not possible, students were assigned letter grades on the basis of the amount and quality of their work completed.

As a second category, those students who did not complete the courses within one semester, but who did not withdraw formally, were to be allowed additional time to complete the course. Those students in this category were identified simply as "Incomplete."

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[2]These course objectives are provided with the course descriptions in the Appendix of the study.

Thirdly, students who withdrew formally from a course before the end of the fall semester were identified as "withdrawals."

As a second means of assessing the progress of students in the individualized courses, the teachers in each course were asked to make a subjective judgment of a student's achievement. It was felt that an additional means of assessment was necessary to guage the state of the progress of those students, in particular, who were rated as "Incomplete." Such an incomplete status might connote lower accomplishment than a regular letter grade, or it might be judged as an extension of what could normally have been a failure. Since the individualized, self-paced aspect of these courses was designed to maximize a student's achievement in a given subject and to permit him to vary the time necessary for an established minimum level of achievement, such a judgment should not be made about the "Incomplete" category.

In order to extend the assessment of students' progress beyond that provided by the regular letter-grade classification, teachers were asked to place all students into one of three categories. This subjective judgment was assumed to be made by the instructor with consideration given to previous experience by the teacher in the same or similar course when it was taught on the regular group basis. The following were the three student-progress categories in an individualized course:

1. The student might not have been able to accomplish as much in a regular, group-organized class as he did in the individualized situation; or he did better in the self-paced situation than a regular class might have permitted. (Positive category)

2. The student would probably have done just as well in a regular class as he did in the individualized, self-paced situation; or the individualized situation seemed to make no difference in the student's accomplishment. (Neutral Category)

3. The student may have profited more from this course if it had been taught in the traditional manner; or he did less well in the individualized class than he may have in a more structured situation. (Negative Category)

For those classes in which such information was appropriate, the following types of student completion data were also collected:

1. The number of hours spent during a semester in a class to reach the completion level attained at the end of the semester;

2. The advance placement of a student within a course such that he was not required to proceed through all of the regular semester assignments in order to satisfactorily meet the course requirements;

3. Early completion of the course requirements, or finishing a given course before the end of the fall 1971 semester.

(b) Student Background Data

Various student background data were collected for the purpose both of having some basic descriptive information about the students in the respective individualized courses and of comparing this background information with the students' course accomplishments. These data were obtained through the distribution of questionnaire-type data sheets to the students enrolled in each course.[3] Students who withdrew from a course before such forms were made available did not, of course, complete one. The following information collected on this form was used in the comparative analysis with student course achievement:

1. Age of student

2. Major course of study

3. Program of study such as two-year associate degree program, two-year vocational diploma program, one-year vocational diploma program, or other

4. The number of semesters which a student has attended the particular technical institute in which he is currently enrolled.

5. High school graduation status

6. Previous attendance at another educational institution since high school

7. Previous business courses taken in any school, with the objective of identifying previous enrollment in the same subject matter in which the student is currently enrolled

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[3]A copy of this questionnaire is included in the Appendix of this study.

8. The number of different classes in which a student was currently enrolled

9. The number of hours per week in which a student was scheduled to attend class

10. Current employment status of the student and the number of hours employed per week

11. The reason the student was currently enrolled in the course, marked from among several reasons listed. These reasons were categorized as either primarily vocational or not vocational.

In order to compare various levels of student achievement with these selected characteristics, the chi-square contingency method of analysis was used. The various levels and categories of achievement were compared not only with these selected characteristics, but also among the various subject areas, the five models of individualized instruction situations, and the four scheduling patterns. Comparisons of student achievement were also made among the twelve different schools and among different teachers within these schools.

2. Critical Incident Analysis

The second major form of analysis was directed toward identifying those aspects of the selected individualized courses which were considered by both the students and teachers to be particularly effective or particularly ineffective in permitting them to accomplish the objectives they desired in the class. In order to identify those course features which the students and teachers felt to be particularly important, the critical incident technique of analysis was used. This technique developed by Flanagan (1954) has previously been used to identify favorable or unfavorable characteristics of persons as they perform in designated roles, such as teaching. As it was used in this study, however, characteristics of individual courses were the objects of interest. It was considered that this method could be extended to identify activities within a course which students and teachers considered to be particularly significant since it would provide a means of avoiding mere opinions or attitudes about the course. The critical incident technique did provide a direct means of singling out activities in a course which had in turn led to either favorable or unfavorable results. The following is a description of the critical incident technique as it was developed by John C. Flanagan (1954):

The critical incident technique consists of a set of procedures for collecting direct observations of human

behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles.

By an incident is meant any observable human activity that is sufficiently complete in itself to permit inferences and prediction to be made about the person performing the act. To be critical, an incident must occur in a situation where the purpose or intent of the act seems fairly clear to the observer, and where its consequences are sufficiently definite to leave little doubt concerning its effect.

Certainly in its broad outlines and basic approach, the critical incident technique has very little which is new about it. . . perhaps what is most conspicuously needed to supplement these activities is a set of procedures for analyzing and synthesizing such observations under more carefully controlled conditions.

In order that the final list of job requirements be valid, it must necessarily be based on data representing not the opinions or beliefs of the members of the group, but their actual experiences in the form of reports of behavior which led directly to the success or failure of the individual on important parts of the job. It is important that these behaviors be identified by those who describe these as especially effective or ineffective according to their own standards, not those of any outside person or group; also they should not be derived from stereotyped concepts traditionally listed whenever definitions of successful researchers are requested. For these reasons the Critical Incident Technique requires that reports of critical incidents be confined to descriptions of what actually occurred, leaving out inference or interpretation.

It should be noted that the critical incident technique is very flexible and the principles underlying it have many types of applications. Its two basic principles may be summarized as follows:

(a) reporting the facts regarding behavior is preferable to the collection of interpretations, ratings and opinions based on general impressions.

(b) reporting should be limited to those behaviors which, according to competent observers, make a significant contribution to the activity.

In summary, the critical incident technique, rather than collecting opinions, hunches, and estimates, obtains a record of specific behaviors from those in the best position to make the necessary observations and evaluations. A list of subsequent critical course aspects provides a sound basis for making inferences as to requirements in terms of necessary or desirable course options, less desirable provisions, and other characteristics of classroom operation.

Several other studies which have incorporated this research technique have come to a number of conclusions as to its most effective application. With respect to the means of collecting the incidents, it has been observed by Blair (1962) and Farrar (1962) that the personal interview is an effective means of obtaining the incident data. Further, students have been considered to be good observers of critical incidents. (Samson, 1964) They are both reliable and valid indicators of teachers' behaviors, for example.

With respect to the development of meaningful categories for analysis from the incident data, it has generally been found that significant categories may be established through the collection of a large number of incidents, and it is generally found that a large number of incidents will result in a much smaller number of categories. These categories are usually judged on the grounds of their "meaningfulness" -- this being related to the degree of their specificity. Samson (1964) has suggested that when the normal procedure of category formulation and classification, using judges recognized as expert in the area, is followed, the categories developed did seem to be significant to the degree that the incidents were true and accurate as reported by the observer. It is expected that the critical requirements or aspects of courses derived from a critical incident study should provide insight into desirable behavior patterns and several as an effective basis for the further development of testable hypotheses.

In the current project, both students and teachers were to be the observers of those classroom activities which to them were particularly effective or particularly ineffective in leading toward the accomplishment of the course objectives.[4] All of the 28 instructors in the individualized classes were asked to provide this kind of critical incident information. In all of the 23 classes it was decided that a minimum of six students should be selected randomly for the purpose of obtaining this type of personal interview. In two classes, time did not permit this number of interviews, each interview requiring

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[4]The preliminary explanatory statements which were verbally presented to students and to teachers as a part of the critical incident interview have been reproduced in the Appendix.

approximately thirty minutes. In seventeen classes, more than six students were available for such thirty-minute interviews. In the remaining four classes, six students were interviewed.

Table IV is a summary of the 23 classes included in the study, the initial enrollment, and the number of students interviewed. In all cases, the first six students were selected randomly from teachers' record books or as they entered the classroom. Beyond this number, students were taken from the course to talk with the investigator as time and their convenience permitted.

From the 224 student interviews, a total of 1226 separate incidents were obtained. From the 28 different teachers interviewed in the 23 classes, a total of 378 incidents were obtained.

These incidents for both groups, students and teachers, were analyzed by the investigator and placed into categories considered to be descriptive of the activities identified. Each incident was also classified as either effective or ineffective as evaluated by the student or teacher.

Before any analysis of these data, the categories were cross-validated for a 10 percent random sample from the students' incidents. Six persons knowledgable of the business and distributive education fields were asked independently to classify 126 incidents using the categories developed by the investigator. Had there been substantial divergence in the categorization of these incidents, a re-analysis of the categories would have been necessary. The findings of this cross-validation are presented with the other analyses of these data in the next major section.

After all of the incidents from the student and teacher groups had been categorized, several chi-square contingency analyses were performed. The major categories of the incidents were compared successively with the subject areas from which they were obtained, the district in which the schools were located, the model of the individualized class, and the scheduling pattern used. The quality of the incidents as they were categorized, either effective or ineffective, was also compared with the subject area, the district in which the schools were located, the model of the individualized course, and the scheduling pattern. Comparisons were also performed between the student and teacher groups with respect to the incident categories and their quality as favorable or unfavorable.

TABLE IV
COURSE ENROLLMENTS AND
NUMBER OF CRITICAL INCIDENT INTERVIEWS

District	Course Title	Initial Enrollment	Students Interviewed
3, Fennimore	Business Mathematics	24	3
	Business Accounting I	27	7
4, Madison	Salesmanship	58	13
	Typewriting II - Legal	14	11
5, Beloit	Typewriting I and II	140	13
5, Janesville	Typewriting I and II	51	7
6, Kenosha	Merchandising Display	30	14
8, Waukesha	Non-Textiles	31	9
	Fashion Fabrics	17	6
	Typewriting I and II	141	9
9, Milwaukee	Beginning Typewriting	52	8
	Accounting	62	15
	Business Mathematics	38	11
	Beginning Shorthand	31	9
10, Fond du Lac	Typewriting I and II	57	16
11, Sheboygan	Shorthand I	16	6
	Shorthand III	11	6
	Typewriting I and II	169	15
11, Manitowoc	Shorthand I	19	4
	Shorthand II and III	15	6
	Typewriting I, II, and III	81	12
12, Appleton	Typewriting I and II	104	16
15, Wausau	Typewriting for Printers	18	8

Summary

The preceding has been an introduction to and discussion of the procedures followed in this study. First the basis for the selection of the 23 individualized instructional classes included in this study was discussed. Next, these 23 classes were divided into two descriptive categories: the model which characterized the degree of individualized instruction in the classes and the scheduling pattern of the classes.

Lastly, the procedures which were followed in the analysis of the data were discussed. Two different types of data were analyzed: student achievement data within each of the 23 classes, and the critical incidents in these classes which were reported by both students and teachers.

PART III
FINDINGS AND ANALYSIS OF DATA

In order to identify those course aspects of individualized instructional situations which were contributing most or which were acting as deterrents in reaching desired course objectives, 23 courses were evaluated. These courses represented five different subject areas which included 1204 students and 28 instructors.[1]

Two primary types of data analysis were performed in this study. The first has been identified as an analysis of student background and course completion data. The second has been identified as a critical incident analysis. Each of these is presented as a major subdivision of this section of the report.

In order to minimize the presentation of tables in the main body of the report, the numerical presentations of many of the findings have been included in a separate Technical Appendix. While the findings from all of the major aspects of these analyses have been included here, the tables from which many of the findings were drawn may be referenced in the separate Appendix.

The statistical procedure used in making all of the comparisons was essentially the same. The chi-square test for contingency was used to test the degree of association between two variables or categories. This association was considered to be significant if the probability of the calculated chi-square variable was equal to or less than 1 percent (or a .01 level of significance). When a significant chi-square value was obtained, it was necessary to determine which values of the two compared categories might be most responsible for the departure from independence. Those observed category frequencies which departed most from the frequencies expected if there were complete independence between the categories were, therefore, singled out. It was these marked departures of observed frequencies from expected frequencies which were considered to reveal occurences of most interest in the individualized instructional situations.

Student Background and Completion Analysis

The student background and completion analysis was based on two types of student achievement information and several student background characteristics. The first student completion measure was that of the course grade received at the end of the fall 1971 semester. According to the teacher's judgment of a student's level of achievement in a

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[1]Summary descriptions of each one of these courses have been included in the Appendix. Included in these descriptions are the course materials and equipment used and the general procedures followed in these individualized instructional situations.

course, each student was given an A, B, C, or, in a few instances, D grade. A student who did not complete the course requirements by the end of the fall 1971 semester received a grade of "Incomplete". If a student formally withdrew from the course, he was classified as a "Withdrawal". It was also noted whether a student had completed a course early and whether he had been initially placed at a more advanced starting point in a particular course than the beginning.

As a second type of achievement measure, the teacher of each course was asked to rate each student on the basis of the progress he had made in the individualized instructional situation compared to what the student might have done in a more traditional, or structured, class. This subjective evaluation placed a student in one of these three categories:

1. A "positive" category indicating that the student probably did better in the individualized situation than a more structured class would have permitted.

2. A "neutral" category indicating that the student probably did his work no differently than he would have been able to do in a regular group-oriented class.

3. A "minus" category indicating that the student probably would have done better work in a more traditional, structured, class then he was able to do in the individualized course.

The following are the background data which were collected from students enrolled in the several individualized courses. While these are listed here, each will be described more thoroughly as the findings are presented from comparing these characteristics with one of the achievement categories.

1. Age of the student
2. Major course of study
3. Program in which the student was enrolled
4. High school graduation status
5. Enrollment in any other educational institution since leaving high school
6. Previous educational experience in a course similar to the one in which the student was currently enrolled
7. Number of different courses in which a student was enrolled
8. Number of hours per week during which a student was scheduled to attend classes
9. Number of hours per week during which a student was employed
10. The student's reason for enrolling in the course, either vocational or not vocational.

The findings related to these background data and to the two types of course achievement measures are summarized below.

I. Student Completion Status by Course Grade

The first area of student background and course completion analysis to be presented here is that which related student course achievement as measured by course grade with several other student characteristics or course features. This measure of student achievement was compared with the following main areas of either student characteristics or course features:

1. Subject in which the grade was received
2. School in which the grade was received
3. Comparisons within the same subject offered in different schools
4. Teacher who assigned the grade
5. Model of individualized instruction in which the grade was received
6. Scheduling pattern in which the grade was received
7. Student's major, program of enrollment, number of semesters in the same technical institute, and objective in enrolling in the course
8. High school graduation of the student and previous enrollment in another educational institution since leaving high school
9. Previous course experience by the student in the same subject in which he was currently enrolled
10. Category in which the student was placed by the teacher with respect to the progress the student had made in an individualized instructional situation

A. Comparison of Subject Areas with Student Completion Status

Table V summarizes the grades received by 1204 students in seven subject areas. These seven subject included all 23 different classes in 12 technical schools. The subject areas included accounting, business mathematics, marketing, beginning shorthand, advanced shorthand, and two distinct forms of typewriting classes.

The typewriting classes were divided into two groups based on the two different forms of individualized instructional materials used in each. The first form designated as "AVT Tupewriting" used special slide-tape materials for the primary presentation of typewriting instruction. These materials were developed commercially to be used expressly in an individualized typewriting instructional situation. The second form of typewriting courses called "Text Typewriting" used typewriting textbooks which were designed primarily for group instruction. These text materials had been reorganized by the course instructors to permit self-paced progress by the students.

TABLE V
GRADE DISTRIBUTION OR COMPLETION STATUS
IN SEVEN SUBJECT AREAS
(Frequency Counts)

SUBJECT	COURSE GRADE OR COMPLETION STATUS								TOTAL ENROLLMENT
	A	B	C	D	TOTAL COMPLETES (A+B+C+D)	INC*	W**	TOTAL NON-COMPLETES (INC+W)	
Accounting	20	7	6	0	33	32	24	56	89
Business Math	8	11	8	0	27	28	7	35	62
Marketing	55	13	6	0	74	47	15	62	136
Beg. Shorthand	10	9	4	2	25	20	21	41	66
Adv. Shorthand	6	7	3	-	16	6	4	10	26
AVT-Typewriting	84	112	99	3	298	169	137	306	604
Text-Typewriting	19	47	39	6	111	56	54	110	221
TOTAL GRADES OR COMPLETION STATUS	202	206	165	11	584	358	262	620	1204

Chi-Square = 158.27 (30 Degrees of Freedom) Sign. at .01 Level
*INC = Incompletes
**W = Withdrawal

The table may be read as follows: of those 89 students enrolled in accounting courses, 20 received grades of A; 7, grades of B; and 6 grades of C. A total of 33 students in accounting completed the course. "Incompletes" were received by 32 students and "Withdrawals" by 24. A total of 56 students in accounting classes did not complete the course within one semester. Each succeeding row may be read in a similar manner for each subject area.

The calculated chi-square value presented at the bottom of Table V was statistically significant, indicating a relationship between subject area and the distribution of student grades or completion status. These same data as are presented in Table V as frequency counts are contained in Table VI in the form of percentages. For each subject along the left column, the percentages in the corresponding row indicate the proportion of each grade awarded in relation to the total number of grades awarded in that subject. For example, in the first row, 23 percent of all of the grades given in accounting clesses were A's.

TABLE VI
COURSE GRADES OR COMPLETION STATUS
IN SEVEN SUBJECT AREAS
(Row Percentages)

SUBJECT	COURSE GRADE OR COMPLETION STATUS								
	% A	% B	% C	% D	% TOTAL COMPLETES (A+B+C+D)	% INC*	% W**	% TOTAL NON-COMPLETES (INC+W)	TOTAL %
Accounting	23	8	7	0	27	36	27	63	100
Business Math	13	18	13	0	44	45	11	56	100
Marketing	40	10	4	0	54	35	11	46	100
Beg. Shorthand	15	14	6	3	38	30	32	62	100
Adv. Shorthand	23	27	12	0	62	23	15	38	100
AVT-Typewriting	14	19	16	0	49	28	23	51	100
Text-Typewriting	9	21	18	2	50	25	25	50	100
TOTAL % OF GRADES	17	17	14	1	49	30	21	51	100

*INC = Incomplete
**W = Withdrawal

In examining the obtained frequencies in Table V, those which departed most from the frequencies expected if there were a uniform distribution of grades in each subject have been singled out. These most extreme deviations may be summarized as follows:

Accounting - More A's than expected (23 percent) were given. More "Incompletes" (36 percent) and "Withdrawals" (27 percent) than expected were also given.

In the accounting classes combined, 63 percent of the students enrolled either did not complete the course in one semester or withdrew from the course.

Business Mathematics - More "Incompletes" occurred (45 percent) than would have been expected if the distribution of "Incompletes" were uniform for each subject. Fewer "Withdrawals" occurred (11 percent) than would have been expected.

In the business mathematics classes combined, therefore, 56 percent of the students either did not complete the course within one semester or withdrew from the course.

Marketing - More A's (40 percent) and also more "Incompletes" (35 percent) occurred than expected. There were fewer B's (10 percent), C's (4 percent) and "Withdrawals" (11 percent) than expected.

In the four marketing classes combined, 45 percent of the students either did not complete the course by the end of the fall semester or withdrew from the course.

Beginning Shorthand - There were more "Withdrawals" (32 percent) than would be expected with a random assignment of this completion status across subjects.

In all three of the beginning shorthand classes combined, 62 percent of the students either did not complete the course within one semester or withdrew from the course.

Advanced Shorthand - None of the grades assigned or the completion statuses in advanced shorthand departed extremely from those expected statistically.

In the two advanced shorthand classes combined, only 38 percent of the students either did not complete the course within one semester or withdrew from the course.

AVT Typewriting - More B's (19 percent) and C's (16 percent) were awarded than expected by a random distribution. There were fewer A's (14 percent) and also fewer "Incompletes" (28 percent) than expected.

In the five AVT typewriting courses combined, 51 percent of the students either did not complete the course within one semester or withdrew from the course.

Text Typewriting - As was the case with AVT Typewriting, more B's (21 percent) and C's (18 percent) were awarded than expected. Fewer A's (7 percent) and also fewer "Incompletes" (25 percent) were given than expected.

In the five text typewriting classes combined, 50 percent of the students either did not complete the course within one semester or withdrew from the course.

B. Comparison of Technical School Attended with Student Completion Status

The same data as was just summarized by subject area are again presented in Table VII, but this time the course grades are grouped according to the technical school which the student was attending. These schools have been identified by district number and school.

For example, in District No. 3, 19 of the 51 students in this school received grades of A; 10 received grades of B; and 8, grades of C. "Incompletes" were received by 6 students and "Withdrawals" by 8. A total of 37 students completed the course, and 14 students did not complete the course by the end of the fall semester. Similar data may be read in each succeeding row for each district and school.

The chi-square value calculated and presented at the bottom of Table VII was statistically significant; there was a relationship between the completion status of the students and the school they attended.

Table VIII presents these same data in the form of percentages. Within each technical school district the occurrence of a given grade is expressed as a percent of the total number of grades given in that school.

For example, 37 percent of the grades received in District No. 3 were A's; 20 percent, B's; and 15 percent, C's. Of all of the students enrolled, 72 percent completed the course within one semester and 28 percent did not. Of those who did not complete the course within one semester, 12 percent received "Incompletes" and 16 percent, "Withdrawals." The distribution of student grades within a school included all of the subjects which were part of this study in that school.

TABLE VII
COURSE GRADES OR COMPLETION STATUS
IN TWELVE TECHNICAL SCHOOLS
(Frequency Counts)

DISTRICT NO. AND CITY OF SCHOOL	COURSE GRADE OR COMPLETION STATUS								TOTAL ENROLLMENT
	A	B	C	D	TOTAL COMPLETES (A+B+C+D)	INC*	W**	TOTAL NON-COMPLETES (INC+W)	
No. 3, Fennimore	19	10	8	0	37	6	8	14	51
No. 4, Madison	18	8	5	1	32	33	7	40	72
No. 5, Beloit	8	12	51	0	71	23	46	69	140
No. 5, Janesville	5	8	0	1	14	20	17	37	51
No. 6, Kenosha	14	10	2	0	26	0	4	4	30
No. 8, Waukesha	41	33	21	2	97	49	43	92	189
No. 9, Milwaukee	18	14	10	3	97	85	53	138	183
No. 10, Fond du Lac	2	21	17	4	44	0	12	12	56
No. 11, Sheboygan	23	52	33	0	108	50	37	87	195
No. 11, Manitowoc	12	15	12	0	39	47	29	76	115
No. 12, Appleton	37	15	1	0	53	45	6	51	104
No. 15, Wausau	5	8	5	0	18	0	0	0	18
TOTAL	202	206	165	11	584	358	262	620	1204

Chi-Square = 362.15 (55 Degrees of Freedom) Sign. at .01 Level
*INC = Incomplete
**W = Withdrawal

TABLE VIII
COURSE GRADES OR COMPLETION STATUS
IN TWELVE TECHNICAL SCHOOLS
(Row Percentages)

DISTRICT NO. AND CITY OF SCHOOL	COURSE GRADE OR COMPLETION STATUS								
	% A	% B	% C	% D	% TOTAL COMPLETES (A+B+C+D)	% INC*	% W**	% TOTAL NON-COMPLETES (INC+W)	% TOTAL
No. 3, Fennimore	37	19	16	0	72	12	16	28	100
No. 4, Madison	25	11	7	1	44	46	10	56	100
No. 5, Beloit	6	9	36	0	51	16	33	49	100
No. 5, Janesville	10	16	0	2	28	39	33	72	100
No. 6, Kenosha	47	33	7	0	87	0	13	13	100
No. 8, Waukesha	22	18	11	1	52	26	22	48	100
No. 9, Milwaukee	10	8	6	1	25	46	29	75	100
No. 10, Fond du Lac	4	38	30	7	79	0	21	21	100
No. 11, Sheboygan	12	26	17	0	55	26	19	45	100
No. 12, Appleton	36	14	1	0	51	43	6	49	100
No. 15, Wausau	28	44	28	0	100	0	0	0	100
TOTAL %	17	17	14	1	49	30	21	51	100

*INC = Incomplete
**W = Withdrawal

The deviations from a uniform, or random, distribution of grades for each school may be summarized as follows:

District No. 3 - Fennimore

More A's than expected (37 percent) were given. Fewer "Incompletes" (12 percent) resulted than were expected statistically.

These grades include those given in both accounting and business mathematics. In these classes combined, 72 percent of the students completed the course in which they were enrolled. The remaining 28 percent received grades of "Incomplete" or "Withdrawal."

District No. 4 - Madison

More A's (25 percent) and also more "Incompletes" (46 percent) were given than expected. Fewer "Withdrawals" (10 percent) occurred than expected.

These grades included both marketing and text-typewriting. In these two classes combined, 44 percent of the students completed the course. The remaining 56 percent received grades of "Incomplete" or "Withdrawal."

District No. 5 - Beloit

More C's (36 percent) and more "Withdrawals" (33 percent) resulted than expected randomly. Fewer A's (6 percent), B's (9 percent), and "Incompletes" (16 percent) occurred than expected.

These grades include only AVT-typewriting. The large number of C's was the result of awarding advanced standing", or a C grade, to students who met a minimum speed requirement and then left the course. In summarizing the completion status of students in this course, 51 percent completed the course and 49 percent received "Incompletes" or "Withdrawals."

District No. 5 - Janesville

More "Incompletes" (39 percent) and "Withdrawals" (33 percent) occurred than expected.

These grades include only AVT-typewriting. As may be read in Table VIII 28 percent of the students enrolled in this course had completed their work at the end of the fall semester. The remaining 72 percent were either "Incomplete" or had "Withdrawn."

District No. 6 - Kenosha

More A's (47 percent) and B's (33 percent) were awarded than would be expected with a random distribution of grades. Fewer "Incompletes" (none) resulted than expected.

These grades included only marketing. In this course 87 percent of the students completed the

requirements at the end of the semester. Since there were no "Incompletes" the remaining 13 percent were the course "Withdrawals."

District No. 8 - Waukesha

More A's (22 percent) were given than expected. Fewer C's were given than expected.

These grades included both marketing courses and AVT-typewriting. In all of these courses combined, 52 percent of the students completed the requirements within one semester. The remaining 48 percent had "Withdrawn" or were as yet "Incomplete."

District No. 9 - Milwaukee

More "Incompletes" (46 percent) and "Withdrawals" (29 percent) occurred than expected statistically. Fewer A's (10 percent), B's (8 percent) and C's (6 percent) were given than expected.

These grades included accounting, business mathematics, beginning shorthand, and text-typewriting courses. In these classes combined, 25 percent of the students had completed their courses at the end of the fall semester. The remaining 75 percent received grades of "Incomplete" or had "Withdrawn."

District No. 10 - Fond du Lac

More B's (38 percent) and C's (30 percent) were given than expected. Fewer A's (4 percent) and "Incompletes" (none) occurred than expected.

These grades included only text-typewriting. In this school it was not possible for a student to continue a course beyond one semester; therefore, no "Incompletes" could be given. In this class, 79 percent of the students had completed the course at the end of the semester. The remaining 29 percent were "Withdrawals" from the course.

District No. 11 - Sheboygan

More B's (27 percent) and C's (17 percent) were given than expected statistically. Fewer A's (12 percent), however, were given than expected.

These grades included beginning and advanced shorthand and AVT-typewriting. In these classes combined, 55 percent of the students were completed with their course at the end of the semester. The remaining 45 percent were either "Incomplete" or course "Withdrawals."

District No. 11 - Manitowoc

More "Incompletes" (41 percent) resulted than expected. Fewer A's (10 percent) and B's (13 percent) were given than would have been expected with a uniform distribution of grades across schools.

These grades included beginning and advanced

shorthand and text-typewriting. In these subjects combined, 34 percent of the students were completed at the end of the fall semester. The remaining 66 percent received course "Incompletes" or Withdrawals." As with the other districts, these data may also be read in each row of Table VIII.

District No. 12 Appleton

More A's (36 percent) and "Incompletes" (43 percent) were given than expected. Fewer C's (1 percent) and "Withdrawals" (6 percent) were given than expected.

These grades included only AVT-typewriting. Because students were permitted to maintain active course registration for two semesters, they were more likely to be considered "Incomplete" when they may have in fact "Withdrawn" from school. This may account for the particularly large proportion of "Incompletes" and the small proportion of "Withdrawals." In summary, 51 percent of the students in this class were completely finished with the course requirements at the end of the fall semester. The remaining 49 percent were either "Incomplete" or had "Withdrawn."

District No. 15 - Wausau

More B's (44 percent) were given than were expected statistically. Fewer "Incompletes" (none) occurred than expected.

These grades included only text-typewriting. Since there was no provision for course continuation beyond one semester, no "Incomplete" grades were used in this school. All of the students enrolled in this course completed the course requirements at the end of the fall semester. There were no course "Incompletes" or "Withdrawals."

C. Comparisons within a Single Subject in Different Technical Institutes with Student Completion Status

Except in the two cases of the beginning and advanced shorthand courses, the distribution of course grades within the same subject differed significantly from school to school.

Table IX summarizes the course completion data for each of the 23 classes included in this study. Because summary data for each subject area and for each district were presented in the previous tables, the data in Table IX are expressed solely in the form of percentages.

For example, in the first row, in the accounting class in District No. 3, 56 percent of the students received grades of A's (column 1).

TABLE IX
COURSE GRADES OR COMPLETION STATUS
IN 23 CLASSES, BY SUBJECT AREA
(Row Percentages)

SUBJECT AND SCHOOL DISTRICT	COURSE GRADE OR COMPLETION STATUS								
	% A	% B	% C	% D	% TOTAL COMPLETES (A+B+C+D)	% INC*	% W**	% TOTAL NON-COMPLETES (INC+W)	% TOTAL ENROLLMENT
Accounting									
No. 3 (Fennimore)	56	4	3	0	63	11	26	37	27 (100%)
No. 9 (Milwaukee)	8	10	8	0	26	47	27	74	62 (100%)
Business Math									
No. 3 (Fennimore)	17	37	29	0	83	13	4	17	24 (100%)
No. 9 (Milwaukee)	11	5	3	0	19	66	16	81	38 (100%)
Marketing									
No. 4 (Madison)	31	5	0	0	36	57	7	64	58 (100%)
No. 6 (Kenosha)	47	33	7	0	87	0	13	13	30 (100%)
No. 8 (Waukesha)	29	0	13	0	42	45	13	58	31 (100%)
No. 8 (Waukesha)	82	0	0	0	82	0	18	18	17 (100%)

TABLE IX (continued)

SUBJECT AND SCHOOL DISTRICT	COURSE GRADE OR COMPLETION STATUS								
	% A	% B	% C	% D	% TOTAL COMPLETES (A+B+C+D)	% INC*	% W**	% TOTAL NON-COMPLETES (INC+W)	% TOTAL ENROLLMENT
Beg. Shorthand									
No. 9 (Milwaukee)	7	13	6	6	32	29	39	68	31 (100%)
No. 11 (Sheboygan)	38	19	6	0	63	12	25	37	16 (100%)
No. 11 (Manitowoc)	11	11	5	0	27	47	26	73	19 (100%)
Adv. Shorthand									
No. 11 (Sheboygan)	9	46	18	0	73	18	9	27	11 (100%)
No. 11 (Manitowoc)	33	13	7	0	53	27	20	47	15 (100%)
AVT-Typewriting									
No. 5 (Beloit)	6	9	36	0	51	16	33	49	140 (100%)
No.5 (Janesville)	10	16	0	2	28	39	33	72	51 (100%)
No. 8 (Waukesha)	13	23	12	1	49	25	26	51	141 (100%)
No. 11 (Sheboygan)	10	26	18	0	54	27	19	46	168 (100%)
No. 12 (Appleton)	36	14	1	0	51	43	6	49	104 (100%)

TABLE IX (continued)

SUBJECT AND SCHOOL DISTRICT	COURSE GRADE OR COMPLETION STATUS								
	% A	% B	% C	% D	% TOTAL COMPLETES (A+B+C+D)	% INC*	% W**	% TOTAL NON-COMPLETES (INC+W)	% TOTAL ENROLLMENT
Text-Typewriting									
No. 4 (Madison)	0	36	36	7	79	0	21	21	14 (100%)
No. 9 (Milwaukee)	14	4	4	1	23	42	35	77	52 (100%)
No. 10 (Fond du Lac)	4	38	30	7	79	0	21	21	56 (100%)
No. 11 (Manitowoc)	6	14	12	0	32	42	26	68	81 (100%)
No. 15 (Wausau)	28	44	28	0	100	0	0	0	18 (100%)
TOTAL	202	206	165	11	584	358	262	620	1204 (100%)

*INC = Incomplete
**W = Withdrawal

A total of 63 percent of the students completed the course (column 5); and a total of 37 percent of the students received either an "Incomplete" or "Withdrew" from the course. Summary completion data may be read for each class.

The following summarize the findings from comparing individual classes of single subjects with student completion status:

Accounting - Two accounting courses were included in this study: one each in District No. 3 (Fennimore) and District No. 9 (Milwaukee).

More A's (56 percnet) were assigned in District No. 3 than in District No. 9 (8 percent). More "Incompletes" were assigned, however, in District No. 9 (47 percent) than expected; and fewer "Incompletes" (11 percent) were given in District No. 3 than expected. A summary of the total proportions of students in each class who completed the course may be read in Table IX.

Business - Two business mathematics were included in study: one each in District No. 3 (Fennimore) and District No. 9 (Milwaukee).

More "Incomplete" grades were assigned in District No. 9 than expected (66 percent), and fewer "Incompletes" were correspondingly assigned in District No. 3 than expected (13 percent).

Marketing - Four marketing courses were included in this study: one in District No. 4 (Madison); one in District No. 6 (Kenosha); and two in District No. 8 (Waukesha).

More A's than expected were assigned in the Fashion Fabrics course in District No. 6 (82 percent). This occurrence was due most likely to the policy in this class of assigning grades of either A or "Incomplete". More B's than would have been expected with a random distribution of grades (33 percent) were assigned in the Merchandise Display course in District No. 6. Fewer A's than expected were assigned in District No. 4 (31 percent).

With respect to the status of "Incomplete", fewer than would have been expected randomly occurred in both Fashion Fabrics in District No. 8 (none) and Merchandise Display in District No. 6 (also none). More "Incompletes" than were expected resulted in District No. 4 (57 percent). A summary of the total course completions and non-completions may be read for each class in Table IX.

AVT-typewriting - Five AVT-typewriting courses were included in this study: two in District No. 5 (Beloit and Janesville); one in District No. 8 (Waukesha); one in District No. 11 (Sheboygan); and one in District No. 12 (Appleton).

More A's (36 percent) were assigned in District No. 12 than expected randomly, and fewer A's than expected were assigned in District No. 5 (Beloit) (6 percent) and District No. 11 (10 percent).

Fewer B's than expected were assigned in District No. 5 (Janesville) (none) and in District No. 12 (1 percent). More C's than expected were assigned in District No. 5 (Beloit) (36 percent).

With respect to the statuses of "Incomplete" and "Withdrawal", more "Incompletes" than expected occurred both in District No. 5 (Janesville) (39 percent) and District No. 12 (43 percent). Fewer "Incompletes" than expected (16 percent) occurred in District No. 5 (Beloit). More "Withdrawals" than expected randomly occurred in District No. 5 (Beloit and Janesville, 33 percent in each school). Fewer "Withdrawals" than expected were observed in District No. 12 (6 percent).

Text-typewriting - Five text-typewriting classes were included in this study: one each in District No. 4 (Madison): District No. 9 (Milwaukee; District No. 10 (Fond du Lac); District No. 11 (Manitowoc); and District No. 15 (Wausau).

More B's and C's were assigned in District No. 10 (68 percent) than expected, and fewer B's and C's than expected were assigned in District No. 9 (8 percent) and in District No. 11 (26 percent).

With respect to "Incomplete" and "Withdrawal" grades, more of both of these than expected were assigned in District No. 9 (78 percent). More "Incompletes" than would have been expected if the distribution of these grades were uniform were assigned in District No. 11 (42 percent). Fewer "Incompletes" than expected were assigned in District No. 10 (none) and in District No. 15 (none).

Because the typewriting classes had been divided into AVT- and text-typewriting groups, these two methods were compared with respect to the assignment of grades, or the student completion status. The only difference between these two forms of typing courses with respect to grade assignment was that more A's than would have been expected randomly (14 percent) were awarded in the AVT-typewriting classes. Correspondingly,

fewer A's than expected (9 percent) were awarded in the text-typewriting classes. The proportion of other grade assignments did not differ significantly. The frequencies of grade assignments in these two forms of typewriting courses and proportions of these grades are contained in Tables V and VI, pages 25 and 27 previously discussed.

D. Comparison of Individual Teachers and Student Completion Status

The grade each student received was compared with the teacher who assigned that grade, or in whose course the student received an "Incomplete" or "Withdrawal" status. This analysis had the same effect as comparing the grade received by students with the separate classes from which those grades came.

Since grades have already been shown to be significantly related to the subject and to the school in which the grade was assigned, the significant relationship between grades and teacher was not surprising.

The strength of the relationship between grades and the teacher assigning that grade can be further depicted by the coefficient of contingency. This index may range from zero (complete independence) to one (complete dependence). In the case of the relationship between teachers and grades, this coefficient was C=.61, showing a moderately high degree of relationship. This coefficient was C=.36 when comparing each subject area with course completion status; it was C=.50 when comparing each school with course completion status.

E. Comparison of Model of Individualized Instruction and Student Completion Status

Each of the five models used to describe the degree of individualized instruction provided in the 23 classes was compared with the student completion status or grade resulting in each one. The descriptions of these five models and the number of classes included in each one were presented previously on pages 9 and 10.

A tatistically significant chi-square value indicated that there was a relationship between the grade which a student received and the descriptive model of the individualized class in which he was enrolled. The following summarize the extent to which grade proportions deviated from those which would be expected if the distribution of grades were uniform for each model:

Model No. 1 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

More "Withdrawals" (26 percent) occurred than would have been expected randomly. Thirteen different classes were included in this descriptive model.

Model No. 2 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at a variety of levels.)

More B's (23 percent) were given than were expected randomly; fewer "Withdrawals: (15 percent) occurred than were expected. There were six classes included in this model.

Model No. 3 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at various levels. Integration of remedial adjuncts to a fixed "main tract" instructional sequence.)

Fewer A's (6 percent) were given than expected; more "Incompletes" (42 percent) resulted than would have occurred randomly. Only one course was included as meeting the descriptive requirements of this model.

Model No. 4 (Objective to develop students to designated criteria with provision for student selection of course-unit progression. Duration of progression flexible.)

More A's (40 percent) occurred than were expected; fewer "Incompletes" occurred than expected. Two classes were included in this model.

Model No. 5 (Objective to develop students to individually selected criteria for each student and the use of different instructional sequences for each. Pretesting and placement are incorporated into the construction of the instructional sequences.)

Fewer A's (4 percent) and B's (4 percent) were given than would have been expected if the distribution of grades were uniform for each model. More "Incompletes" (42 percent) and "Withdrawals" (35 percent) occurred than were expected. Only one class was included as meeting the descriptive requirements of this model.

Comparison of advanced standing and student completion status. Associated with the degree of individualized instruction available to students in a course was the possibility in some classes for students to receive "advanced standing." Particularly in those courses which used pretesting to assess student's previous background in a subject, a student could start at a point more advanced than the beginning of the instructional sequence. In Table X each student was classified as either having received this type of advanced standing or not. Advanced standing status was then compared with the completion status of these students in their respective courses. Data were available from 969 students with respect to their advanced standing status.

As shown in the row totals of Table X, 189 students received

TABLE X
COURSE GRADE OR COMPLETION STATUS
COMPARED WITH ADVANCED STANDING
(Row Percentages)

ADVANCED STANDING	COURSE GRADE OR COMPLETION STATUS						
	A	B	C	D	INC*	W**	TOTAL
NO	18	18	13	1	31	19	780 (100%)
YES	24	35	12	1	19	9	189 (100%)
TOTAL %	19	21	13	1	29	17	969 (100%)

Chi-Square = 41.34 (5 Degrees of Freedom) Sign. at .01 Level
*INC = Incomplete
**W = Withdrawal

advanced standing, or 20 percent of the total students. All but seven of these students were in typewriting courses. These remaining seven were in beginning shorthand. The advanced starting status of students in either AVT or Text typewriting will be contrasted following this present comparisonof advanced standing with course completion status.

A statistically significant chi-square value indicated that there was a relationship between the grade which a student received and his placement with a course sequence. More A's and B's (59 percent) were awarded to students having advanced standing than to those without advanced standing in the course in which they were enrolled (36 percent A's and B's). Fewer "Incompletes" and "Withdrawals" (28 percent) resulted for those students who received advanced standing than for those without such placement (51 percent "Incompletes" or"Withdrawals").

A separate comparison was made of the occurrence of advanced standing in the AVT and Text typewriting courses only. The statistically significant chi-square value indicated that there were proportionately more students in the Text typewriting courses (37 percent) who received advanced standing than there were in the AVT typewriting courses (22 percent).

F. Comparison of Class Scheduling Pattern and Student Completion Status

Each class was categorized as having one of four scheduling patterns. These scheduling patterns and the classes included in each one were discussed previously on page 11. A significant chi-square value indicated that the scheduling pattern of a class was related to the grade distribution, or the student completion status, for that scheduling arrangement. The following summarize the significant deviations of grades for a particular scheduling pattern from those grade proportions which would have been expected if the distribution had been uniform for each schedule.

Schedule No. 1 (All classes scheduled to meet at a designated time.)

More A's (21 percent of the grades in this scheduling pattern) and fewer B's (12 percent) and C's (10 percent) than expected resulted in classes meeting this scheduling description. Ten classes were placed in this category.

Schedule No. 2 (Some classes scheduled to meet at a designated time; some classes released for independent student work.)

Fewer C's (8 percent) but more "Incompletes" (35 percent) occurred than expected in classes meeting this scheduling pattern. Three classes were combined as meeting the criteria for this scheduling category.

Schedule No. 3 (All classes scheduled to meet at a designated time; laboratory facilities available for extra course work in addition to the scheduled class.)

More B's (35 percent) and C's (20 percent) than expected and fewer "Incompletes" (4 percent) than expected resulted in classes corresponding to the descriptive requirements of this scheduling pattern. Four classes were included in this category.

Schedule No. 4 (No classes scheduled; all work completed in an open laboratory at a time chosen by the student.)

Fewer A's (14 percent) than expected and more C's (17 percent) resulted in classes using this scheduling arrangement. Six classes were included in this scheduling pattern.

G. Comparison of Student Major, Program, Semester in School, and Stated Course Objective with Student Completion Status

Data were collected from 990 students regarding their major in school, the program in which they were enrolled, and the number of semesters they had been enrolled in the same technical institute. For 745 of these students, an expression of the reason for which they were taking the particular course of interest in this study was available. Each one of these variables was compared with the corresponding grade or completion status of the student.

Major course of study. The major course of study for each student was categorized as either being directly related to the individualized course in which he was enrolled or not directly related to it. For instance, if a typewriting student were majoring as a Clerk Typist, this was considered to be directly related to his typewriting course. A typewriting student majoring in Accounting, however, would not be considered to be in a major directly related to typewriting.

A marketing student who was majoring in Salesmanship was considered to be in a major directly related to his course. However, a student majoring in Interior Design was not considered to have a major directly related to marketing. In the business mathematics courses, which were generally required for all business students, it was considered that no particular group of students had a major more directly related to business mathematics than any other group. In all of the subject areas the assumption made was that taking a course directly related to one's major might represent a motivational element that would be related to the subsequent course grade or completion status.

A significant chi-square value indicated that there was a relationship between a student's course completion status and his having a major directly related to that course. Of the 990 students in the sample, 616 (two-thirds of the students) were categorized as having a major directly related to their courses. These students received a higher proportion of A's (24 percent) than would have been expected if the distribution of grades were uniform with respect to these two categories. Those students not in

majors directly related to the particular individualized course received a higher proportion of B's (24 percent) and C's (20 percent) than would have been expected randomly. There was no difference in the occurrence of course "Incompletes" or "Withdrawals" for these two groups of students.

Program of enrollment. Students were categorized as being in one of four programs: two-year associate degree program; two-year vocational diploma program; one-year vocational diploma; and other. Those students in the "Other" category were either taking just one course, were in programs shorter than one year, or were enrolled as special students.

The degree of relationship between a student's program and his completion status was found to be statistically significant. Those students enrolled in a two-year associate degree program were found to have a higher proportion of A's (27 percent of the grades earned by these students) than would have been expected randomly. Students in the one-year vocational diploma program had fewer A's (16 percent) than would have been expected randomly. Students in the one-year vocational diploma program also had more "Withdrawals" than expected (19 percent).

Semester in the same technical school. The majority of students who reported their semester of school enrollment, 779 of 990 students (79 percent), were in their first semester of attendance. The next largest group, 101 of 990 students (10 percent) were in their third semester of enrollment. There was no statistically significant relationship between the semester of school enrollment and the completion status of a student.

Stated objective of course enrollment. On the student questionnaire[2] seven stated choices plus the category of "Other" were provided to students as possible reasons for enrolling in a particular course. Three of the choices were expressions of direct vocational interest, such as planning to get a job as soon as possible. The other four choices were not directly vocational, such as taking the course because it was required. If a student marked at least one of the vocationally oriented choices, or wrote in the "other" category a statement indicating vocational concern, he was classified as having a vocational objective. Otherwise, he was not considered to have a vocational objective.

Of the 745 students from whom these data were available, 436 (59 percent) indicated a vocational objective for enrolling in a particular course. The remaining 309 (41 percent) were categorized as not having a vocational objective. There was found to be no statistically significant relationship between this expression of the reason for taking a course and the subsequent completion status or grade received by a student.

H. Comparison of High School Graduation and Attendance at Other Schools since High School with Student Completion Status

Each student was asked to indicate whether he had graduated from high

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[2]This questionnaire is included in the Appendix.

school. This information was available from 910 students. Further, each student was asked whether he had attended any other educational institution since leaving high school. This information was available from 872 students.

High school graduation. Of the 910 responses to this question, 857 students (94 percent) had graduated from high school. A significant chi-square value indicated that there was a relationship between having completed a high school level of education and the grade received in the particular individualized course in which the student was enrolled.

More A's (21 percent of high school graduate's grades) and B's (22 percent) than expected were earned by the high school graduates than by the non-high school graduates (8 percent A's and 9 percent B's). Of those grades received by the non-high school graduates, a higher proportion than expected were "Incompletes" (43 percent) or "Withdrawals" (26 percent). High school graduates received 28 percent of all their grades in the "Incomplete" category and 3 percent of their grades in the "Withdrawal" category. These were smaller proportions than would have occurred with a uniform distribution of grades among graduates and non-graduates.

Attendance at other educational institution. Of the 872 students who responded to this question, 709 (81 percent) had not attended other educational institutions since leaving high school. A significant chi-square value indicated, however, that there was a relationship between having continued with school since high school and the completion status of the student in one of the individualized courses. Those students who had attended other schools had more A's (31 percent) than were expected with a uniform distribution and fewer "Incompletes" (10 percent) than expected. Those students who had not attended other schools had fewer A's (19 percent) than expected and more "Incompletes" (15 percent).

I. Comparison of Previous Course Experience and Student Completion Status

Each student was asked to list any business courses he had taken previous to enrolling in the course which was a part of this study. This was to permit the judgment or whether or not a student had had a course similar in subject matter to that in which he was currently enrolled. It was then possible to place each student into one of two categories: having had previous instruction in the same subject matter as his current course; and having had no previous instruction in the subject matter of his current course. It was possible to place 970 in one of these two categories.

In making this judgment in marketing classes, the decision was more difficult than in the typewriting and shorthand courses. In the case of marketing students, therefore, it was concluded that a student had not had a marketing course similar to that in which he was currently enrolled unless he had had that specific course before. On the contrary, the subject matter of business mathematics was judged to be one with which all students

had had previous experience in arithmatic.[3]

A significant chi-square value indicated that there was a relationship between a student's having had previous preparation in a subject and his achievement in the same course when taken on an individualized basis. Those students with previous course experience had more B's (25 percent) and C's (15 percent) than were expected with a random distribution. These students also had fewer "Incompletes" (24 percent) than were expected. Students without such previous preparation in the course in which they were enrolled had fewer B's (13 percent) and C's (9 percent) than expected. These students also had more "Incompletes" (40 percent).

This same relationship of more B's and C's and fewer "Incompletes" for those students with previous course experience was also found to continue to be statistically significant for the individual subject areas of accounting, beginning shorthand, and typewriting. In both AVT and Text typewriting, those students with previous course experience also had more A's and fewer "Withdrawals" than students without such earlier preparation. In beginning shorthand, students with previous course experience also had fewer "Withdrawals" than students without earlier preparation.[4]

J. Comparison of Teacher Categorization and Student Completion Status

A second means used to evaluate student achievement in each of the individualized instructional situations was to ask each teacher to place a student in one of three categories. These three categories were the following:

1. The student probably made greater achievement gains in the individualized situation than a regular or more structured class would have permitted. (Positive category)

2. The student probably experienced no difference in achievement in the individualized situation than he would have in a regular class. (Neutral category)

3. The student probably achieved less in the individualized situation than he would have been encouraged to achieve in a regular, more structured class. (Negative category)

Each one of these categories (positive, neutral, and negative) was

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[3]Tables T-I - T-II, the Technical Appendix summarize the frequency counts and percentages of grades for students in the two categories of having or not having had previous course experience.

[4]Tables containing these frequency counts and percentages of grades for each subject area are included in the Technical Appendix, Table T-II.

compared with students' corresponding course achievement as measured by a letter grade, an "Incomplete" or a "Withdrawal."

Table XI summarizes the distribution of these three categories with the corresponding categories of student completion status. The subjective teacher judgments which placed students into positive, neutral, or negative categories were available for 1059 students. Those students placed in a positive category were 43 percent of the total (453 students of 1059); those in the neutral category, 31 percent (327); and those in the negative category, 26 percent (279).

There was found to be a statistically significant relationship between these categories and the completion status of students. This relationship can more easily be seen in Table XI when expressed in the form of percentages. For example, the first column presents the distribution of course grades for students placed in the positive category. Of all of the grades awarded to students in this category, 34 percent were A's, 23 percent were B's, 12 percent were C's, and so on.

Those students who teachers placed in the positive group received more A's (34 percent) and B's (28 percent) than were expected with a uniform distribution of grades among the three teacher-judgment categories. Students in the positive category also received fewer "Incompletes" (21 percent) and "Withdrawals" (36 percent).

Students in the neutral category received fewer A's and B's (13 percent and 14 percent, respectively) than expected and more "Withdrawals" (36 percent).

Students in the negative category also received fewer A's and B's (2 percent and 12 percent, respectively) and more "Incompletes" (51 percent) than were expected.

II. Student Achievement as Evaluated by Teacher Categorization of Students

The three categories just summarized and compared with student letter grades were also compared with many of the same subject and student variables as were the letter grades previously. Comparisons with the three teacher-judged categories were made using the following variables:

1. Subject in which the categorization was made
2. School in which the categorization was made
3. Comparisons within the same subject offered in different schools
4. Teacher who made the categorization
5. Model of individualized instruction in which the categorizations was made
6. Scheduling pattern in which the categorization was made
7. Previous course experience by the student in the same subject in which he was currently enrolled

TABLE XI
COURSE GRADE OR COMPLETION STATUS
AND TEACHER CATEGORIZATION
(Frequency Counts and Column Percentages)

COURSE GRADE OR COMPLETION STATUS	TEACHER CATEGORIZATION			TOTAL
	POSITIVE	NEUTRAL	NEGATIVE	
A	152 (34%)	41 (13%)	5 (2%)	198 (19%)
B	128 (28%)	45 (14%)	32 (12%)	205 (19%)
C	55 (12%)	28 (9%)	44 (16%)	127 (12%)
D	3 (1%)	1 (0%)	7 (2%)	11 (1%)
INC*	93 (21%)	93 (28%)	142 (51%)	328 (31%)
W**	22 (5%)	119 (36%)	49 (18%)	190 (18%)
TOTAL	453 (100%)	327 (100%)	279 (100%)	1059 (100%)

Chi-Square = 309.91 (10 Degrees of Freedom) Sign. at .01 Level
*INC = Incomplete
**W = Withdrawal

The findings resulting from these comparisons are now briefly summarized.

A. Comparison of Subject and Teacher Categorization

Table XII summarizes the frequency counts of the three student categories for each of the seven subject areas. For example, of those 47 students enrolled in accounting classes, 24 were placed by their teachers into the positive category. There were 12 accounting students in the neutral and 11 in the negative category. Frequency counts may be read in a similar manner for the other subject areas.

These same data are also presented in Table XII as percentages. For each subject area, the proportions of positive, neutral and negative categories are presented in each row. For example, in the accounting classes, 51 percent of the students were placed in a positive category, 26 percent of all accounting students were placed in a neutral category, and 23 percent in a negative category.

A statistically significant chi-square value indicated that there was a relationship between subject area and the rating established by the teacher. The following subject areas were found to have the most extreme deviations from the statistically expected frequencies in each category:[5]

Business Mathematics -	More negative categories (42 percent of all student classifications in business mathematics) than expected and fewer positive categories (29 percent).
Beginning Shorthand -	More negative categories (35 percent) than were expected randomly and fewer positive categories (30 percent).
AVT-Typewriting -	More neutral categories (35 percent) than expected and fewer negative categories (23 percent) than expected.
Text-Typewriting -	More positive categories (48 percent) than expected and fewer neutral categories (23 percent).

B. Comparison of Technical School and Teacher Categorization

The distribution of the categories into which teachers placed each student with respect to his achievement in an individualized situation was compared with the technical school in which the student was enrolled. Table XIII summarizes the frequencies within each category by the district number and school location. For example, in District No. 3, Fennimore, 9 of all 44 students in this District were placed in the positive category; 16 of the 44 in the neutral category; and 19 in the negative category.

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[5]Possible reasons for these particularly positive or negative categorizations are discussed in the Conclusions section of this study.

TABLE XII
TEACHER CATEGORIZATIONS OF STUDENTS
IN SEVEN SUBJECT AREAS
(Frequency Counts and Row Percentages)

SUBJECT	TEACHER CATEGORIZATION			TOTAL
	POSITIVE	NEUTRAL	NEGATIVE	
Accounting	24 (51%)	12 (26%)	11 (23%)	47 (100%)
Business Math	18 (29%)	18 (29%)	26 (42%)	62 (100%)
Marketing	56 (48%)	26 (23%)	34 (29%)	116 (100%)
Beg. Shorthand	20 (30%)	23 (35%)	23 (35%)	66 (100%)
Adv. Shorthand	13 (50%)	11 (42%)	2 (8%)	26 (100%)
AVT-Typewriting	224 (42%)	190 (35%)	126 (23%)	540 (100%)
Text-Typewriting	98 (48%)	47 (24%)	57 (28%)	202 (100%)
TOTAL	453 (43%)	327 (31%)	279 (26%)	1059 (100%)

Chi-Square = 33.85 (12 Degrees of Freedom) Sign. at .01 Level

TABLE XIII
TEACHER CATEGORIZATIONS OF STUDENTS
IN TWELVE TECHNICAL SCHOOLS
(Frequency Counts and Row Percentages)

DISTRICT NO. AND CITY OF SCHOOL	TEACHER CATEGORIZATION			TOTAL
	POSITIVE	NEUTRAL	NEGATIVE	
No. 3, Fennimore	9 (21%)	16 (36%)	19 (43%)	44 (100%)
No. 4, Madison	29 (42%)	12 (18%)	27 (40%)	68 (100%)
No. 5, Beloit	35 (38%)	29 (31%)	29 (31%)	93 (100%)
No. 5, Janesville	9 (27%)	15 (44%)	10 (29%)	34 (100%)
No. 6, Kenosha	20 (95%)	0 (0%)	1 (5%)	21 (100%)
No. 8, Waukesha	39 (21%)	75 (41%)	68 (37%)	182 (100%)
No. 9, Milwaukee	68 (46%)	40 (27%)	40 (27%)	148 (100%)
No. 10, Fond du Lac	24 (46%)	14 (27%)	14 (27%)	52 (100%)
No. 11, Sheboygan	107 (55%)	70 (36%)	18 (9%)	195 (100%)
No. 11, Manitowoc	32 (32%)	29 (29%)	39 (39%)	100 (100%)
No. 12, Appleton	68 (65%)	24 (23%)	12 (12%)	104 (100%)
No. 15, Wausau	13 (72%)	3 (17%)	2 (11%)	18 (100%)
TOTAL	453 (43%)	327 (31%)	279 (26%)	1059 (100%)

Chi-Square = 151.20 (22 Degrees of Freedom) Sign. at .01 Level

Table XIII also presents this same data expressed as percentages within each school. For example, again in District No. 3, 21 percent of the students in this District were placed in the positive category; 36 percent were placed in the neutral category; and 43 percent, in the negative category.

A statistically significant chi-square value indicated a relationship between teacher-category and the school in which the course was offered. The following summarize the most extreme deviations of observed category frequencies from the statistically expected frequencies:

District No. 3 - Fennimore	More negative categories (43 percent) and fewer positive categories (21 percent) than expected with a uniform distribution of categories across each school.
District No. 4 - Madison	More negative categories (40 percent) and fewer neutral categories (18 percent) than expected.
District No. 5 - Beloit	More negative categories (31 percent) and fewer positive categories (38 percent) than expected randomly.
District No. 5 - Janesville	More neutral categories (44 percent) than expected and fewer positive categories (27 percent).
District No. 6 - Kenosha	More positive categories (95 percent) and fewer negative categories (5 percent) than expected.
District No. 8 - Waukesha	More negative categories (37 percent) and neutral categories (42 percent) than expected and fewer positive categories (21 percent).
District No. 9 - Milwaukee	More positive categories (46 percent) and fewer neutral categories (27 percent) than expected.
District No. 10 - Fond du Lac	No extreme deviations from the expected frequencies in each of the three categories.
District No. 11 - Sheboygan	More positive (55 percent) and neutral (36 percent) categories than expected and fewer negative categories (9 percent).
District No. 11 - Manitowoc	More negative categories (39 percent) and fewer positive categories (32 percent) than expected.
District No. 12 - Appleton	More positive categories (65 percent) and fewer neutral (23 percent) and negative (12 percent) categories than expected.
District No. 15 - Wausau	More positive categories (72 percent) than were expected randomly.

C. Comparison of the Same Subject Within Different Technical Schools and Teacher Categories

Not only did the categories into which teacher placed students differ across the subjects themselves and across the various technical school districts, but they were also found to differ significantly within a single subject when compared across school districts.[6] The following summarize the most extreme deviations of observed from expected frequencies for those subjects in which such differences existed from school to school:

Accounting - No statistically differences were observed among the teacher categorizations of students in two accounting classes. One class was taught in District No. 3 (Fennimore), and the other in District No. 9 (Milwaukee).

Business Mathematics - Two business mathematics classes were included in this study: one in District No. 3 (Fennimore), and the other in District No. 9 (Milwaukee).

There was found to be a statistically significance between the categorizations made by the teachers in these two schools. In District No. 3 there were more negative categories (63 percent of the student categories in this District) and fewer positive categories (8 percent) than would have been expected if the distribution among categories were uniform in the two schools.

In District No. 9, there were more positive categories (42 percent) and fewer negative categories (29 percent) than were expected statistically.

Marketing - Four marketing classes were included in this study: one in District No. 4 (Madison); one in District No. 6 (Kenosha); and two in District No. 8 (Waukesha).

In District No. 6, more positive categories occurred (95 percent) than were expected if there were a uniform distribution of categories among the four classes.

In District No. 8 (Non-Textiles) and District No. 4, fewer positive categories occurred (30 percent and 39 percent, respectively) than were expected. In District No. 4 there were also more negative categories (46 percent) than expected randomly.

Beginning Shorthand - Three beginning shorthand classes were included in this study: one in District No. 9 (Milwaukee); one in District No. 11 (Sheboygan); and one in District No. 11 (Manitowoc).

[6]Tables containing the frequency counts and percentages for each subject are in the Technical Appendix, Table T-III.

In District No. 9, fewer positive categories (10 percent) and more negative categories (52 percent) occurred than expected if the distribution of categories were uniform among the three classes.

In District No. 11 (Sheboygan), more positive categories (75 percent) and fewer negative categories (19 percent) occurred than expected.

Advanced Shorthand - Two classes of advanced shorthand were included in this study: one in District No. 11 (Sheboygan) and the other in District No. 11 (Manitowoc).

There were no statistically significant deviations of these teachers' categories from those expected with a uniform distribution in both classes.

AVT-Typewriting - Five classes of AVT Typewriting were included in this study: one in District No. 5 (Beloit); one in District No. 5 (Janesville); and one each in District No. 8 (Waukesha), District No. 11 (Sheboygan), and District No. 12 (Appleton).

The following were the significant deviations of teacher categorizations in these five classes:

In District No. 5 (Beloit), there were more negative categories than were expected randomly (31 percent)

In District No. 5 (Janesville), fewer positive categories than expected (27 percent) were reported by the teacher.

In District No. 8, there were more negative (43 percent) and fewer positive (17 percent) categories.

In both Districts No. 11 and 12, there were more positive categories (52 percent and 65 percent, respectively) than expected randomly. There were also fewer negative categories than expected (9 percent and 12 percent, respectively.

Text Typewriting - Five classes of typewriting using textbooks as a means of individualizing the course were included in this study: one each in District No. 4 (Madison); District No. 9 (Milwaukee); District No. 10 (Fond du Lac); District No. 11 (Manitowoc); and District No. 15 (Wausau).

The following summarize the more extreme deviations of observed teacher-categories from those expected randomly:

In District No. 9, there were more positive categories (62 percent) and fewer negative categories (12 percent) than expected.

This was also true in District No. 15, more positive categories (72 percent) and fewer negative categories (11 percent).

In District No. 11, there were more negative categories (50 percent) and fewer positive categories (32 percent) than would have been expected with a uniform distribution of categorizations among all five classes.

Because the typewriting classes had been divided into two groups of AVT and Text typewriting, these two groups were contrasted with respect to the categorizations made by the teachers of these classes. A statistically chi-square value again indicated that the judgment made by teachers regarding achievement of students in individualized instructional situations was different in the AVT classes from the categorizations in the Text typewriting classes.

Teachers in the Text typewriting classes placed more students in a positive category (49 percent of all student categories in Text typewriting) than was expected. Text typewriting teachers also placed fewer students in the neutral category (23 percent) than expected.

Teachers in the AVT typewriting classes placed fewer students in the positive category (42 percent of all student categories in AVT typing) than expected and more students in the neutral category (35 percent). The proportion of students placed in the negative category in both types of classes did not differ significantly from a uniform distribution.

D. Comparison of Individual Teachers and Their Categorizations of Students

As would be expected from the above comparisons among individual classes, there was also a significant relationship between the categories of students and the individual teachers who made these judgments. The strength of the association between and student categories and the teacher who made this judgment may be seen from the coefficient of contingency, C=.44.

E. Comparison of Models of Individualized Instruction and Teacher Categorization

A significant relationship was observed between the models of individualized instruction which described each class and the categorizations made of students in these classes with respect to their achievement in an individualized instructional situation. The following summarize the more extreme deviations of observed proportions from expected proportions for each of the five models:

Model No. 1 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.

More negative categories occurred in classes described by this model than expected with a uniform distribution of categories among the five models (36 percent of the students in model). Fewer positive categories (32 percent) than expected were correspondingly observed.

Model No. 2 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at various levels.)

More positive categories than expected (54 percent) and fewer negative categories than expected (14 percent).

Model No. 3 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at various levels. Integrated remedial adjuncts to a fixed "main track" instructional sequence.)

More negative categories than expected (50 percent) and fewer positive categories (32 percent).

Model No. 4 (Objective to develop students to designated criteria with provision for student selection of course-unit progression. Duration of progression is flexible.)

More positive categories occurred than expected (58 percent) and fewer negative categories (15 percent).

Model No. 5 (Objective to develop students to individually selected criteria for each student and the use of different instructional sequences for each. Pretesting and placement are incorporated into the construction of the instructional sequences.)

More positive categories than expected (62 percent) and fewer negative categories than expected randomly (12 percent).

In summary, Models No. 1 and 3 both had more negative categories and fewer positive categories than expected. Models No. 2, 4, and 5 were just the reverse of this: each of these received more positive placements of students and fewer negative placements.

Comparison of advanced standing of students and teacher categorization. Closely related to the type of individualized instructional model for a given class was the opportunity for advanced standing of students. Those schools which had provision for pretesting also permitted students to begin their instructional sequences at different places within a course than at the beginning.

All students were grouped according to whether they had received advanced standing or not. These two groupings were then compared with the three teacher-judged categories for each student. There was not found to be a statistically significant relationship between having had advanced standing or not and the teacher's judgment of a student's achievement in an individualized instructional situation.

F. Comparison of Scheduling Patterns and Teacher Categorization

A statistically significant relationship was observed between the categorization of each student by teachers and the scheduling pattern which described each class.

The following summarize the more extreme deviations of the observed proportions from those which would have been expected if there were a uniform distribution of the teacher categories among scheduling patterns:

Schedule No. 1 (All classes scheduled to meet at a designated time.)

There were no proportions for this scheduling pattern which deviated from those expected statistically.

Schedule No. 2 (Some classes scheduled to meet at a designated time; some classes released for independent student work.)

More negative categories than expected (42 percent of the students included in this scheduling pattern), and fewer positive categories (23 percent) than expected.

Schedule No. 3 (All classes scheduled to meet at a designated time; laboratory facilities available for extra course work in addition to the scheduled classes.)

More positive categories than expected (62 percent) and fewer negative categories than expected (18 percent). There was also fewer neutral categories than expected (19 percent).

Schedule No. 4 (No classes scheduled; all work completed in an open laboratory at a time chosen by the student.)

More positive categories than expected (47 percent) and fewer negative categories (21 percent). There were also more neutral categories than would have been expected randomly (32 percent).

In summary, Scheduling Patterns No. 3 and 4 received more positive categorizations of students than expected, while Scheduling Pattern No. 2 received more negative student categorizations. More neutral categories resulted in Scheduling Pattern No. 4 than expected, and fewer neutral categories than expected in Scheduling Pattern No. 3.

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G. Comparison of Previous Course Experience and Teacher Categorization

Each student was asked to indicate the business courses which he had taken previous to enrollment in the individualized course which was a part of this study. It was, therefore, possible to place each student into one of two categories: having had a previous course similar in subject matter to that in which he was currently enrolled; or not having had previous experience in the same subject area.[7]

The calculated chi-square value indicated that there was a significant relationship between previous course experience and the category into which a student was placed by his instructor. Those students who had had previous experience in the same subject area received more positive categorizations than expected (46 percent of the 638 students who had had previous course experience). Correspondingly, these students with previous course experience received fewer negative cateeorizations (24 percent).

Those students who had not had previous course experience, on the contrary, received fewer positive categorizations than expected (39 percent of the 331 students in this course experience category). These students who had not had previous course experience also received more negative categorizations (33 percent) than expected.

III. Early Course Completion

All of the individualized courses permitted students the option of completing the course requirements before the end of the semester and of leaving the course if they did so. Each student, therefore, was placed into one of two categories: either having completed a course early, or not having completed the course early. The number of students who did not complete the courses early also included students who had not yet completed their course at all, or who may have withdrawn entirely from the course.

Of 969 students who could be placed into one of these two categories, 198 (20 percent) had completed the course in which they were enrolled early; 771 (80 percent) had not completed the course early, or may not yet have completed the course at all. A student's status as having completed a course early or not was compared with the following variables:

1. Subject area in which the student was enrolled
2. School which the student attended
3. Category into which the student was placed by his teacher with respect to his achievement in an individualized instructional situation

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[7]Table T - IV in the Technical Appendix summarize the previous course experience of students in relation to the categorization made of each student by his teacher with respect to achievement in an individualized instructional situation.

4. Model of the individualized class in which the student was enrolled
5. Scheduling pattern of the course in which the student was enrolled

Each one of these relationships will be briefly summarized.

A. Comparison of Subject Area and Early Course Completion

There was found to be no statistically significant relationship between early course completion and the subject in which a student was enrolled. The distribution of early completions was statistically uniform across the seven subject areas.

B. Comparison of Technical School and Early Course Completion

A statistically significant chi-square value indicated that there was a relationship between the number of students who completed a course early and the school which they were attending. There were more early completions than expected randomly in District No. 11, Sheboygan, (28 percent of the students in this school) and in District No. 12, (33 percent of the students in this school). Fewer early course completions than expected occurred in District No. 4, Madison, (4 percent of the students in this school) and in District No. 9, Milwaukee, (5 percent of the students in this school).

C. Comparison of Teacher Categorization of Students and Early Course Completion

There was found to be a statistically significant relationship between early course completion and the category into which a student was placed, either positive, neutral, or negative, with respect to his achievement in an individualized instructional situation. Those students who did complete a course early received more positive categorizations than expected with a random distribution (76 percent of the students who had finished early). These 198 students who had finished early also received fewer negative categorizations (7 percent of the students) and fewer neutral categorizations (17 percent) than expected.

Those 771 students who did not complete a course early, or perhaps who had not as yet completed the course, received more negative categorizations (32 percent of the students) and more neutral categorizations (35 percent). These students also received fewer positive placements (33 percent) than would have been expected with a uniform distribution of categories for the two groups of students.

D. Comparison of Individualized Instructional Models and Early Course Completion

A significant chi-square value indicated that there was a relationship

between early course completion and the degree of individualization available within a course. There were two cases in which the observed frequencies of early course completions deviated markedly from those frequencies expected with a uniform, or random, distribution of early completions across the instructional models. These two cases were the following:

Model No. 1 (Objective to develop students to a designated criteria by altering the duration of instruction. Fixed track; no initial pretesting and placement at a variety of levels.)

There were fewer early completions (15 percent of these students finished early) than expected with a uniform distribution of early completions among the five models.

Model No. 2 (Objective to develop students to a designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at a variety of levels.)

There were more early course completions (27 percent of these students finished early) than expected.

Advanced standing and early course completion. Corresponding to the above findings associated with Model No. 2, it was also found that those students who received advanced standing within a course had more early completions (39 percent of the students with advanced standing) than did those students who were not given advanced standing (16 percent of the students without advanced standing).

E. Comparison of Scheduling Pattern and Early Course Completion

A significant chi-square value indicated that there was a relationship between finishing a course early and the scheduling arrangement available to a student. There were two cases in which the observed frequencies of early completions deviated most markedly from the frequencies expected statistically. The two scheduling patterns in which these deviations resulted are summarized below:

Schedule No. 2 (Some classes scheduled to meet at a designated time; some classes released for independent student work.)

Fewer early course completions occurred than would have been expected randomly (13 percent of the students in this scheduling arrangement).

Schedule No. 4 (No classes scheduled; all work completed in an open laboratory at a time chosen by the student.)

More early completions occurred than expected randomly (25 percent of the students in this scheduling arrangement).

IV. Hours Spent During the Semester in Individualized Instructional Courses

In all of the "open laboratory" typewriting courses and in four of the shorthand courses, procedures were used to accumulate the number of hours which a student was spending in the classroom working on the assignments for the particular course he was taking. These tabulated course hours may be considered to represent the minimum number of hours which a student spent on a given course. These hours did not include any time spent at home or outside of class, and they are underestimates of total hours in those instances that a student did not record his time in the laboratory correctly.

To accumulate these hour tabulations, three schools used a time clock procedure in which a student recorded his time "IN" and his time "OUT" through the mechanical operation of using the time clock. Two other schools used paper "Sign In" and "Sign Out" slips to keep a record of student attendance in the lab.

The number of hours spent on a course each semester by 667 shorthand and typewriting students have been compared with three other variables:

1. Completion status of students in the typewriting and shorthand classes in which hours were recorded.
2. Advanced standing status of a student
3. Categorization of each student made by his teacher with respect to his achievement in an individualized instructional situation.

The findings from these comparisons are summarized briefly below:

A. Comparison of Student Completion Status and Number of Hours Spent in a Course in One Semester

Table XIV presents the frequency counts by hour ranges and the grade or course completion status of each student. For example, in the first row, of the 141 students who used from 0 - 20 hours within the semester, 87 received a "Withdrawal" status.

Table XV presents this same data in yet another form. For each grade level or completion status, the proportion of students in the various hour ranges is presented in the columns. For instance, of the 141 students who received a status of "Withdrawal", 62 percent were again in the 0 - 20 hour range; 26 percent were in the 21 - 40 hour range; and so on.

A significant chi-square value and also a high contingency coefficient of C=.58 indicated that there was a significant relationship between the number of hours which a student had spent work on his course assignments and his grade or completion status. Most notably, those students rated as "Incomplete" or "Withdrawal" had spent fewer hours in a course than would have been expected with a uniform distribution. Students in these two categories also had fewer representations in the higher hour ranges than expected randomly.

TABLE XIV
RANGE OF HOURS SPENT IN OPEN LABORATORY DURING ONE SEMESTER
AND COURSE COMPLETION STATUS
TYPEWRITING AND SHORTHAND CLASSES
(Frequency Counts)

RANGE OF HOURS	COURSE GRADE OR COMPLETION STATUS						TOTAL
	A	B	C	D	INC*	W**	
0-20	0	5	9	0	40	87	141
21-40	13	7	13	1	56	37	127
41-60	29	38	24	0	65	9	165
61-80	36	47	18	0	29	7	137
81-100	16	24	11	2	8	1	62
101-120	4	7	2	0	5	0	18
121-140	5	1	1	0	4	0	11
141-160	0	2	0	0	1	0	3
161-180	0	3	0	0	0	0	3
TOTAL	103	134	78	3	208	141	667

Chi-Square = 333.25 (40 Degrees of Freedom) Sign. at .01 Level
*INC = Incomplete
**W = Withdrawal

TABLE XV
RANGE OF HOURS SPENT IN OPEN LABORATORY DURING ONE SEMESTER
AND COURSE COMPLETION STATUS
TYPEWRITING AND SHORTHAND CLASSES
(Column Percentages)

RANGE OF HOURS	COURSE GRADE OR COMPLETION STATUS					
	A	B	C	D	INC*	W**
0-20	0%	4%	11%	0%	19%	62%
21-40	13	5	17	33	27	26
41-60	28	28	31	0	31	6
61-80	35	35	23	0	14	5
81-100	15	18	14	67	4	1
101-120	4	5	3	0	2	0
121-140	5	1	1	0	2	0
141-160	0	2	0	0	1	0
161-180	0	2	0	0	0	0
TOTAL	100%	100%	100%	100%	100%	100%

*INC = Incomplete
**W = Withdrawal

Students receiving grades of A and B, on the other hand, had fewer occurrences in the lower hour ranges (0 - 40 hours) and a larger number of students in the higher hour ranges (61 - 100 hours) than expected randomly.[8]

B. Comparison of Advanced Standing and Number of Hours Spent in a Course in One Semester

There was found to be a statistically significant relationship between the number of hours spent in a course and a student's advanced placement in a course.[9] Those students who were able to start at a more advanced point within a single course had a larger number of total hours in the 41 - 60 hour range (32 percent) than expected statistically. Students without this advanced placement had a higher proportion of hours in the 81 - 100 hour range than would have been expected with a uniform distribution of hours among the two groups (11 percent of the students without advanced placement, compared to 3 percent of the students with such advancement).

C. Comparison of Teacher Categorization of Student Achievement and Number of Hours Spent in a Course in One Semester

The categorizations which teachers made of each student's achievement in an individualized instructional situation were compared with the number of hours which these students had spent in the course during the semester. Again, students for whom such hour totals were available included 667 students in selected shorthand and typewriting classes.

There was found to be a statistically significant relationship between the teachers' categorizations of student achievement in an individualized course and the number of hours which the students spent in the course during the semester. Those students who had spent less than 21 hours in a subject received more neutral placements (60 percent of the students in this hour range) than would have been expected if there were a uniform distribution among the three categories.

In the 21 - 40 hour range, more students received negative categorizations than expected (39 percent). In the 61 - 80 hour range and the 81 - 100 hour range, there were more positive categorizations of students than expected randomly (59 percent and 73 percent, respectively). Correspondingly, in the 61 - 80 and 81 - 100 hour ranges, there were fewer

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[8]Similar findings resulted when the hours were examined for only the typewriting students in the open laboratory classes. Because of the large number of students for whom hours were recorded in the five AVT-typewriting classes, these data have been summarized in Tables T-V - T-VIX in the Technical Appendix.

[9]Table T-X in the Technical Appendix presents a tabulation of the hour ranges spent in a course by students having advanced standing within the course and also by students without such advanced placement.

negative placements of students than expected (17 percent and 11 percent, respectively).

V. Age of Students

The age of each student was compared with the subject in which he was enrolled, the grade or completion status which he attained in a course, and the categorization which his instructor made with respect to his achievement in an individualized instructional situation. A statistically significant relationship was not found to exist between age and any of these three variables.

VI. Number of Courses in which a Student was Enrolled

Each student was asked to indicate the number of different courses in which he was enrolled during the semester and also the number of hours during which he was scheduled to attend classes. Both the number of courses which a student was taking and the number of hours he was scheduled to attend class were significantly related to the completion status which he attained in a course. This information was available for 766 students.

Table XVI summarizes the number of courses in which the students were enrolled during one semester. Table XVII summarizes the range of hours during which students were scheduled to attend classes. As can be seen in Table XVI , most students were enrolled in from 4 to 6 different courses. The hours during which students were scheduled to attend these classes varied from none up to 26 hours per week. Those students who had no scheduled classes were taking one or more classes offered in an open laboratory. In TableXVII, most of the students can be seen to be enrolled in between 16 to 25 hours of scheduled classes.

Number of Courses Taken. With respect to the number of courses in which a student was enrolled, the proportion of B's and C's was higher than expected statistically for students with the larger number of course enrollments. Of the total grades awarded to students taking 7 to 9 courses, 55 percent were B's or C's. Those students with 4 to 6 courses received 33 percent of their grades as B's or C's. A larger proportion of A's, however (27 percent) were earned by students with 4 to 6 courses.

A smaller proportion of "Withdrawals" than expected randomly (7 percent) occurred for those students with 4 to 6 courses. Those students taking 7 to 9 courses, however, had a smaller proportion of "Incompletes" than expected (21 percent, compared with 32 percent for students with 4 to 6 hours). "Withdrawals" accounted for 13 percent of the grades for students with 7 to 9 courses.

Number of Hours Scheduled to Attend Class. With respect to the number of hours during which students were scheduled to attend class, no marked advantage was apparent for those students with fewer scheduled hours. A higher proportion of A's than expected was earned by students having 16 to 20 scheduled class hours per week (29 percent of the grades awarded in this hour range). Fewer A's than expected (15 percent of the grades in this hour range) were earned by students with 21 to 25 scheduled

hours per week, however. A larger portion of C's than expected (24 percent) resulted for those students with 26 or more scheduled class hours per week.

With respect to course "Incompletes", however, more "Incompletes" than expected occurred for students with 11 to 15 scheduled class hours (43 percent of the grades in this hour range). A smaller proportion of "Incompletes" resulted than were expected for those students with 21 or more scheduled hours (18 percent of the grades in the 21-25 hour range and 21 percent of the grades for over 26 scheduled hours).

VII. Hours of Employment Outside of Class

A total of 726 students provided information regarding the number of hours during which they were employed outside of class during a week. Table XVII summarizes the ranges of hours during which students in the 23 individualized classes were employed. These ranges of hours were compared with the completion status attained by each student.

A statistically significant relationship was found to exist between the number of hours a week of student employment and the grade or completion status which a student attained in a course. Students working 11 to 20 hours per week received more A's (27 percent of their grades) and fewer "Incompletes" (22 percent of their grades) than was expected statistically. The grade distributions for students working fewer than 11 hours a week or more than 20 hours a week did not differ significantly from the expected proportions.

TABLE XVI

NUMBER OF DIFFERENT COURSES IN WHICH INDIVIDUAL STUDENTS WERE ENROLLED DURING SEMESTER

Number of Courses	Number of Students
1 - 3	111
4 - 6	505
7 - 9	150
Total	766

TABLE XVII

NUMBER OF HOURS OF SCHEDULED CLASSES FOR INDIVIDUAL STUDENTS DURING SEMESTER

Number of Scheduled Hours	Number of Students
0 - 4	46
5 - 10	81
11 - 15	160
16 - 20	182
21 - 25	182
26 - 30	115
Total	766

TABLE XVIII

HOURS OF STUDENT EMPLOYMENT OUTSIDE OF CLASS

Number of Hours of Employment	Number of Students
0 - 5	389
6 - 10	54
11 - 20	149
21 - 30	92
31 - 40	34
41 - 50	5
51 - over	3
Total	726

Critical Incident Analysis

Both students and teachers in the 23 classes included in this study were asked to identify experiences of particular importance to them in their respective classes. The purpose of asking selected students and teachers to report such "critical incidents" was to permit the isolation of those course aspects which were considered to be particularly effective or particularly ineffective in permitting students to achieve the course objectives. Interviews were possible with 224 students and all of the 28 instructors in the 23 courses. A total of 1226 incidents were obtained in talking with students. Another 378 critical incidents were obtained in talking with the teachers.

The folowing discussion of the analysis of these critical incidents has been organized into the following two main categories or sections:

1. Procedures used for the categorizing and cross-validating the incidents;

2. Main analysis of the incident categories.

I. Procedures for Categorizing and Cross-Validating Incidents

During the interviews with both students and teachers, very close to verbatim notes were made of the events which were singled out as representing either effective or ineffective experiences. Incidents were rated as effective or ineffective during these interviews by the student or the teacher reporting the incident. These interview notes were recorded onto tape and then transcribed from the tape onto 4 X 6 cards. Each of the incidents on these cards, therefore, became the primary source of data.

As each incident was analyzed, descriptive categories were established to characterize the general nature of each incident. This process required first the identification of the event which was described by a student or a teacher as being particularly effective or ineffective. Beginning with the first incident, this event was placed into a category which was judged to depict the course aspect associated with the incident. As each new incident was analyzed, it was either placed into one of the previously established categories, or a new category was developed. The same categories were used for both student and teacher incidents.

After analyzing all of the incidents, a total of 71 different course aspects or instructional activities had been developed as descriptive categories. These 71 specific categories could be grouped into six main incident categories. Two of these six main incident

categories were subdivided, making eight major categories which were to be used in the subsequent analysis. The following were these eight critical incident groups:[10]

I. Procedural aspects of individualized courses

   A. Aspects which broadened the options available to students

   B. Aspects which prescribed the options available to students

II. Aspects associated directly with instructional materials or methods

III. Aspects associated with evaluation materials and methods

   A. Aspects associated with the content or the objective being evaluated

   B. Operational aspects of evaluation

IV. Aspects associated with student-teacher relationships

V. Aspects associated with student-student, or group, relationships

VI. Aspects associated specifically with the use of equipment or instructional media.

In order to check the consistency with which the 1226 student-incidents had been categorized, it was necessary to cross-validate this classification process. Six persons knowledgeable in the fields of business and distributive education were asked to classify a 10 percent random sample of these incidents. These six persons were the following:

Mr. Ruel Falk, Wisconsin Department of Public Instruction

Mr. John Hedstrom, University of Wisconsin, Madison

Mr. Jim Martindale, University of Wisconsin, Madison

Mr. John Schillak, University of Wisconsin, Madison

Mr. Preston Smeltzer, Wisconsin Department of Public Instruction

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[10] A listing of the 71 incident categories within the eight major critical incident groups is presented in the Appendix, Table XXV. The total number of incidents placed into a specific category by students and teachers has been tabulated.

To minimize the time required for these persons in categorizing critical incidents, the random sample of 126 incidents was divided randomly into two parts of 63 incidents each. Three persons, therefore, independently categorized the same group of 63 incidents. These persons were asked to read each incident and place it into one of the 71 categories already established. The following proportions of agreement with the original incident placements were obtained:

One Set of 63 Incidents

First Judge	Second Judge	Third Judge
76%	70%	77%

Second Set of 63 Incidents

First Judge	Second Judge	Third Judge
69%	81%	72%

These proportions of agreement were considered to be sufficiently high to continue the analysis with the established incident categories.

II. Analysis of Critical Incidents

The analysis of the critical incidents obtained from both students and teachers was carried out in five separate stages. First, the categories of the critical incidents from only the students were compared with the categories of the incidents obtained from teachers. The purpose of this analysis was to determine if there were any significant differences in the types of incidents obtained from the two groups of students and teachers.

Second, the incident categories were compared across the seven subject areas. The purpose of this analysis was to determine if the course aspects considered to be particularly effective or ineffective changed for the different subjects. For this analysis the student and teacher groups were kept separate.

Third, the incidents associated within a given subject area were contrasted for the different schools in which that subject was taught. The purpose of this analysis for each subject was to isolate important course aspects within specific instructional situations.

Fourth, the critical incidents were contrasted among the five models used to describe the degree of individualized instruction existing in the 25 classes. The purpose of this analysis was to determine if any particularly effective or ineffective course aspects were associated with any of the descriptive models of the courses.

Fifth, the critical incidents were contrasted among the four scheduling patterns describing the meeting arrangements of the several classes. As with the fourth area of analysis, the intent of this analysis was to determine if different course aspects became particularly effective or ineffective as the scheduling pattern changed.

A. Comparison of Student and Teacher Groups with Respect to Incident Categories

The categories of the critical incidents reported by students and teachers were compared with respect to three aspects of the incidents themselves:

1. The eight main categories into which the incidents were classified;
2. The quality of the incidents as either effective or ineffective events; and
3. The quality of the incidents (either effective or ineffective) within the eight main categories.

The findings from each of these comparisons will be summarized separately.

1. Comparisons of Student and Teacher Groups with Respect to the Main Categories of Incidents

The objective of this analysis was to determine whether students and teachers differed with respect to the main categories into which their critical incidents were classified. Table XIX presents the frequency counts for each incident category and for the student and teacher groups. As can be seen in the first row of the table for Category I-A (Procedural Aspects which Broadened the Options Available to Students), 348 student-incidents were in this category and 91 teacher-incidents, a total of 439 incidents.

These same data are also presented in Table XIX in the form of percentages. The 348 student-incidents in Category I-A represent 28 percent of the total incidents from students. The 91 teacher-incidents in Category I-A represent 24 percent of the incidents from teachers.

A significant chi-square value indicated that there was a difference between the student and teacher groups with respect to the types of incidents which they reported. The incidents from these

TABLE XIX

MAIN CATEGORIES OF CRITICAL INCIDENTS
REPORTED BY STUDENTS AND TEACHERS
(Frequency Counts and Column Percentages)

MAIN INCIDENT CATEGORY*	INCIDENTS REPORTED BY STUDENTS Freq.	%	TEACHERS Freq.	%	TOTAL
I-A	348	(28%)	91	(24%)	439
I-B	134	(11%)	48	(13%)	182
II	323	(26%)	61	(16%)	384
III-A	105	(9%)	41	(11%)	146
III-B	58	(5%)	33	(9%)	91
IV	179	(15%)	79	(20%)	258
V	31	(2%)	14	(4%)	45
VI	48	(4%)	11	(3%)	59
TOTAL	1226	(100%)	378	(100%)	1604

*See page 70 for the Main Category descriptions.

two groups were not classified uniformly among the eight main categories. Students reported more incidents in the following two categories than were expected randomly:

Category I-A: (Procedural Aspects which Broadened the Options Available to Students)

Students reported 28 percent of all of their incidents in this category compared to 24 percent of the incidents from teachers.

Category II: (Instructional Materials and Methods)

Of all student-incidents, 26 percent were in this category compared to 16 percent of the incidents from teacher.

Teachers placed more incidents than expected randomly in the following three categories:

Category III-A: (Content or Objective of Evaluation Materials)

Teacher-incidents, 11 percent, compared to 7 percent of the student-incidents.

Category III-B: (Operational Procedures of Evaluation)

Teacher-incidents, 9 percent, compared with 5 percent of the student-incidents.

Category IV: (Student-Teacher Relationships)

Teacher-incidents, 20 percent, compared with 15 percent of the incidents from students.

2. Comparisons of Student and Teacher Groups with Respect to the Quality of all Incidents as Effective or Ineffective

The objective of this analysis was to determine if the quality of the critical incidents as either effective or ineffective differed for the student and teacher groups. Table XX summarizes these data by frequency counts. Of the total 1226 incidents from students, 355 were ineffective incidents and 871 were effective incidents. Of the 378 incidents from teachers, 170 were ineffective incidents and 208 were effective.

TABLE XX
QUALITY OF CRITICAL INCIDENTS
REPORTED BY STUDENTS AND TEACHERS
(Frequency Counts and Column Percentages)

QUALITY OF CRITICAL INCIDENT	INCIDENTS REPORTED BY		TOTAL
	STUDENTS Freq. %	TEACHERS Freq. %	
Effective	871 (71%)	207 (55%)	1078
Ineffective	355 (29%)	171 (45%)	526
TOTAL	1226 (100%)	378 (100%)	1604

Table XX also presents this same information in the form of percentages. The reason for the statistically significant chi-square value can be readily observed from the different proportions of student-incidents which were classified as effective (71 percent) contrasted with effective incidents from teachers (55 percent). Correspondingly, 29 percent of the incidents from students were ineffective compared with 45 percent of the incidents from teachers.

Because there was found to be a statistically significant difference between the over-all quality of the incidents from students and teachers, this same aspect was examined within the individual technical school district. In only two of the districts, District No. 8 and District No. 9, were there significant differences between the quality of the critical incidents reported by students and teachers. The quality of the incidents in each district may be summarized in the following statements:

District No. 3: Fennimore	The majority of both the student-incidents (55 percent) and the teacher-incidents (77 percent) were citing ineffective incidents.
District No. 4: Madison	The majority of both the student-incidents (55 percent) and the teacher-incidents (55 percent) were reported as effective.
District No. 5: Beloit and Janesville	The majority of both the student-incidents (54 percent) and the teacher-incidents (63 percent) were citing incidents that were ineffective.
District No. 6: Kenosha	The large majority of both the student-incidents (92 percent) and teacher-incidents (100 percent) were reports of effective incidents.
District No. 8: Waukesha	There was a significant difference between the quality of critical incidents of students and teacher. Of student-incidents, more effective incidents (69 percent) were reported than ineffective incidents (31 percent). There was a larger proportion of ineffective incidents for the teachers, however, (64 percent) and a smaller proportion of effective incidents (36 percent).

District No. 9: Milwuakee — There was also a significant difference between the student and teacher incidents with respect to their quality. Students reported more effective incidents (86 percent) than ineffective incidents (14 percent). Teachers reported a larger proportion of ineffective incidents (36 percent), but the majority of the teacher-incidents were still cited as effective experiences (64 percent).

District No. 10: Fond du Lac — The large majority of both student-incidents (80 percent) and teacher-incidents (73 percent) were considered to be effective.

District No. 11: Sheboygan and Manitowoc — The majority of both student-incidents (73 percent) and teacher-incidents (67 percent) were judged as effective.

District No. 12: Appleton — The majority of both student-incidents (76 percent) and teacher-incidents (59 percent) were considered to be effective.

District No. 15: Wausau — The large majority of both the student-incidents (82 percent) and teacher-incidents (86 percent) were reports of effective events.

3. Comparison of the Student and Teacher Groups with Respect to the Quality of Each Main Incident Category

The objective of this last area of comparisons between the student and teacher groups was to determine if there were significant differences in the quality of the incidents as they were classified by their main categories. Table XXI summarizes the effective and ineffective classifications of incidents for both students and teachers. For example, in incident Category I-A (Procedural Aspects which Broadened the Options Available to Students), there were 57 ineffective student-incidents and 32 ineffective teacher-incidents, or a combined total of 89 ineffective incidents in this category.

Table XXI also presents this same information in the form of percentages of total incidents for the student and teacher groups. Again in Category I-A, 5 percent of all of the incidents from students were placed as ineffective in this category. Of the teacher-incidents, 9 percent were ineffective in Category I-A. A significant chi-square value indicated that there was a difference between the classification of incidents as effective and ineffective

TABLE XXI
QUALITY OF CRITICAL INCIDENTS WITH MAIN INCIDENT CATEGORIES AS REPORTED BY STUDENTS AND TEACHERS
(Frequency Counts and Column Percentages)

CRITICAL INCIDENT CATEGORY* AND QUALITY		INCIDENTS REPORTED BY STUDENTS Freq.	%	TEACHERS Freq.	%	TOTAL
I-A:	Effective	291	(24%)	59	(16%)	350
	Ineffective	57	(5%)	32	(9%)	89
I-B:	Effective	74	(6%)	30	(8%)	104
	Ineffective	60	(5%)	19	(5%)	79
II:	Effective	228	(19%)	32	(9%)	260
	Ineffective	95	(8%)	29	(8%)	124
III-A:	Effective	68	(5%)	19	(5%)	87
	Ineffective	37	(3%)	22	(6%)	59
III-B:	Effective	42	(3%)	16	(4%)	58
	Ineffective	16	(1%)	17	(5%)	33
IV:	Effective	129	(11%)	46	(12%)	175
	Ineffective	49	(4%)	32	(9%)	81
V:	Effective	27	(2%)	5	(1%)	32
	Ineffective	5	(.4%)	9	(2%)	14
VI:	Effective	12	(1%)	1	(.3%)	13
	Ineffective	36	(3%)	10	(3%)	46
TOTAL		1226	(100%)	378	(100%)	1604

*See page 70 for the Main Category descriptions.

within main incident categories for students and teachers. The differences between students and teachers are summarized below in the main categories where the most marked differences existed.

Category I-A: (Procedural Aspects which Broadened the Options Available to Students)

There were more effective student-incidents than expected (24 percent of the total number of incidents from students) and fewer effective teacher-incidents than expected (16 percent).

Correspondingly, there were fewer ineffective student-incidents (5 percent) and more ineffective teacher-incidents (9 percent).

Category II: (Instructional Materials or Methods)

There were more effective incidents than expected from students (19 percent) and fewer effective incidents from teachers (9 percent).

The ineffective incidents from students and teachers in this category did not differ from the frequencies expected randomly.

Category III-A: (Content or the Objective of Evaluation)

Students reported fewer ineffective incidents than expected (3 percent), while teachers reported more ineffective incidents than expected (6 percent).

Students and teachers did not differ with respect to the proportions of incidents each group reported as effective in this category.

Category III-B: (Operational Procedures of Evaluation)

Students reported fewer ineffective incidents (1 percent) than were expected randomly; teachers reported more ineffective incidents (5 percent) in this category than expected.

The effective incidents in this category from both students and teachers did not differ from those which were expected.

Category IV: (Student-Teacher Relationships)

There were fewer ineffective incidents in this category than expected from students (4 percent) and more ineffective incidents in this category than expected from teachers (9 percent).

Students and teachers did not differ with respect to the number of effective incidents from each group.

Category V: (Student-Student, or Group, Relationships)

Fewer ineffective incidents were reported by students (4 percent) than expected and more ineffective incidents than expected from teachers (2 percent).

Effective incidents in this category did not differ from the expected proportions for students and teachers.

B. Comparisons of All Subject Areas with Respect to Incident Categories

The purpose of the following analyses was to determine if the quality or the type of critical incidents cited differed according to the subject area in which the incident occurred. Because students and teachers were found to differ significantly with respect to the quality of the incidents which they reported and also the types of events which they cited, student and teacher incidents have been analyzed separately while contrasting all of the subject areas.

For both of these groups, therefore, two types of comparisons were made of the critical incident categories across all of the seven subject areas. These two types of comparisons were the following:

1. Comparison of seven subject areas with respect to the quality of critical incidents as effective or ineffective.

2. Comparison of seven subject areas with respect to the classification of critical incidents as effective or ineffective within the eight main incident categories.

The findings from these two types of comparisons are presented separately.

1. Comparison of Subject Areas with Respect to the Quality of Incidents as Effective or Ineffective

(a) Student Group

Table XXII summarizes the quality of the incidents reported by the students in each subject area as effective or ineffective. Of the total number of incidents reported by students (1226), 101 of these incidents were in the subject area of accounting. Of these incidents in accounting, 26 were considered by students to represent ineffective events; the remaining 75 incidents were considered to be effective. Similar frequency counts may be read for each of the other subject areas.

Table XXII also presents these same data as percentages for each subject area. For example, of the incidents reported by accounting students, 26 percent were ineffective and 74 percent were effective. Similar proportions may be read for each of the other subject areas.

A significant chi-square value indicated that there were differences among the subject areas with respect to the occurrences of effective and ineffective incidents. Summarized below are those deviations which were most extreme from the proportions of incidents expected if there was a uniform distribution of incidents across subject areas.

Business Mathematics: More effective incidents than expected were reported by students (84 percent of the incidents reported in this subject) and fewer ineffective than expected were reported (16 percent).

Marketing: More effective incidents than expected were reported by students (74 percent) and fewer ineffective incidents (26 percent).

Beginning Shorthand: More effective incidents than expected were reported by students (83 percent) and fewer ineffective incidents (17 percent).

AVT Typewriting: Fewer effective incidents than expected were reported by students (60 percent), while more ineffective incidents than expected were reported (40 percent). It should be noted, however, that a larger proportion of effective than ineffective incidents were cited by students, although the proportion of ineffective incidents was larger than was expected randomly.

TABLE XXII
QUALITY OF CRITICAL INCIDENTS
BY SUBJECT AREA
STUDENT GROUP
(Frequency Counts and Row Percentages)

SUBJECT AREA	QUALITY OF CRITICAL INCIDENTS				TOTAL
	EFFECTIVE		INEFFECTIVE		
	Freq.	%	Freq.	%	
Accounting	75	(74%)	26	(26%)	101 (100%)
Business Math	56	(84%)	11	(16%)	67 (100%)
Marketing	210	(74%)	73	(26%)	283 (100%)
Beg. Shorthand	70	(83%)	14	(17%)	84 (100%)
Adv. Shorthand	35	(67%)	17	(33%)	52 (100%)
AVT-Typing	189	(60%)	125	(40%)	314 (100%)
Text-Typing	236	(73%)	89	(27%)	325 (100%)
TOTAL	871	(71%)	355	(29%)	1226 (100%)

No extreme deviations from the expected frequencies were observed in the subject areas of accounting, advanced shorthand, and text-typewriting. In all of the subject areas, the majority of student-incidents were in the effective category.

(b) Teacher Group

Table XXIII summarizes the classification of effective and ineffective incidents from teachers for each of the seven subject areas. Of the 378 incidents from teachers, 32 were in the accounting classes. Of these total incidents in accounting, 14 were reported as ineffective and 18 as effective. Similar information may be read for each of the other subject areas.

Table XXIII also presents the same data in the form of percentages of effective and ineffective incidents for each subject area. Again in accounting, 44 percent of the total incidents reported in this subject were of ineffective incidents; 56 percent were effective. Similar proportions are presented for the other subject areas.

A significant chi-square value indicated that there was a difference in the category of incidents from teachers as effective or ineffective in the various subject areas. Those subject areas in which the most extreme deviations of observed from expected frequencies occurred are summarized below:

AVT Typewriting: More ineffective incidents than expected were reported by teachers (49 percent of the incidents from teachers in this subject) and fewer effective incidents than expected (51 percent).

Text Typewriting: More effective incidents than expected were reported by teachers (71 percent of the incidents in this subject) compared with fewer ineffective incidents than expected randomly (29 percent).

In four of the seven subject areas, the majority of incidents from teachers were considered to depict effective events: accounting, advanced shorthand, AVT typewriting, and text typewriting. In the other three subject areas of business mathematics, marketing, and beginning shorthand, the majority of incidents reported by teachers were considered to be examples of ineffective events.

TABLE XXIII
QUALITY OF CRITICAL INCIDENTS
BY SUBJECT AREA
TEACHER GROUP
(Frequency Counts and Row Percentages)

SUBJECT AREA	QUALITY OF CRITICAL INCIDENTS				TOTAL
	EFFECTIVE		INEFFECTIVE		
	Freq.	%	Freq.	%	
Accounting	18	(56%)	14	(44%)	32 (100%)
Business Math	9	(35%)	17	(65%)	26 (100%)
Marketing	27	(47%)	30	(53%)	57 (100%)
Beg. Shorthand	10	(46%)	12	(54%)	22 (100%)
Adv. Shorthand	14	(67%)	7	(33%)	21 (100%)
AVT-Typing	66	(51%)	66	(49%)	131 (100%)
Text-Typing	62	(71%)	25	(29%)	87 (100%)
TOTAL	207	(55%)	171	(45%)	378 (100%)

2. Comparison of Subject Areas with the Quality (Effective or Ineffective) of Incidents in each Main Incident Category

(a) Student Group

The incidents reported by students in each subject area were compared with the quality of each incident within the eight main categories.[11] A significant chi-square value indicated that the subject areas did differ with respect to the types and quality of incidents which students reported. The following summarize by subject area the incident frequencies which deviated most from those which would have been expected with a uniform distribution of incidents across subject areas:

Accounting: Students reported more effective incidents in Category IV (Student-Teacher Relationships) than expected (17 percent of the total student-incidents in accounting).

Business Mathematics: Students reported more effective incidents in Category II (Instructional Materials and Methods) than were expected (28 percent of all incidents in this subject).

Marketing: Students reported more incidents than expected in the following categories:

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): more ineffective incidents than expected (7 percent of the incidents from students in marketing).

Category II (Instructional Materials and Methods): More effective incidents than expected (23 percent of the incidents in marketing).

Category III-A (Content or Objective of Evaluation Materials and Methods): More effective incidents than expected (11 percent).

Students reported fewer incidents than expected randomly in the following categories:

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[11] The tables summarizing these data are presented in the Technical Appendix, Tables T-XI and T-XII.

Category I-A (Procedural Aspects which Broadened the Options Available to Students): Fewer effective incidents than expected (17 percent).

Category IV (Student-Teacher Relationships): Fewer ineffective incidents (1 percent).

Beginning Shorthand: Students reported more incidents than expected in the following two categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students): More effective incidents (39 percent of all student-incidents in this subject).

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): More effective incidents (11 percent).

Advanced Shorthand: There were no categories of observed frequencies of incidents from students which deviated markedly from those which were expected statistically. Most of the incidents reported were in Category I-A (27 percent) and Category II (19 percent).

AVT Typewriting: Students cited more incidents than would have been expected randomly in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students): Both more effective (28 percent) and ineffective (8 percent) incidents were reported than expected. Of the total incidents reported by students in AVT-typewriting, 36 percent were in this category.

Category II (Instructional Materials and Methods): More ineffective incidents than expected (10 percent of the incidents reported by students in AVT-typewriting).

Category IV (Student-Teacher Relationships): More ineffective incidents than expected (7 percent).

Category VI (Equipment and Instructional Media): More ineffective incidents than expected (9 percent).

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Students cited fewer incidents than expected statistically in the following categories:

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): Both fewer effective (2 percent) and fewer ineffective (3 percent) incidents than expected. Of the total incidents reported by students in AVT-typewriting, 5 percent were in this category.

Category II (Instructional Materials and Methods): Fewer effective incidents than expected (13 percent).

Category III-A (Content or Objective of Evaluation Materials and Methods): Fewer effective incidents than expected (2 percent).

Category IV (Student-Teacher Relationships): Fewer effective incidents than expected were reported (8 percent).

Text Typewriting: Students reported more incidents than expected statistically in the following categories:

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): Both more effective incidents (7 percent of the total incidents reported by students in text typing) and more ineffective incidents (8 percent).

Category II (Instructional Materials and Methods): Both more effective (20 percent) and more ineffective (10 percent) incidents than expected.

Category IV (Student-Teacher Relationships): More effective incidents than expected (12 percent).

Students reported fewer incidents than expected in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students): Fewer ineffective incidents than expected (2 percent of the total incidents reported by students in text-typing). Of the total incidents reported by students in text-typing, 24 percent were in this category. The proportion of effective incidents did not differ significantly from the proportion expected.

Category IV (Student-Teacher Relationships): Fewer ineffective incidents than expected (2 percent).

Category VI (Equipment and Instructional Media): Fewer ineffective incidents than expected (1 percent).

(b) Teacher Group

As with the student group, incidents reported by teachers in each of the subject areas were compared with the quality of the incidents in each of the eight main incident categories.[12] A significant chi-square value indicated that the seven subject areas did differ both with respect to the type of incident cited by teachers and also with respect to the quality of these incidents. The following summarize by subject area the observed frequencies of incidents which departed most from those frequencies expected with a uniform, or random, distribution of incidents across the subject areas:

Accounting: Teachers reported more effective incidents than were expected in Category I-A (Procedural Aspects which Broadened the Options Available to Students). Of the total incidents reported by teachers in accounting, 28 percent were effective incidents in this category.

Business Mathematics: Two incident categories were cited more frequently than expected by teachers:

Category II (Instructional Materials and Methods): More ineffective incidents were cited than expected (15 percent of the total number of incidents reported by teachers in this subject).

Category IV (Student-Teacher Relationships): More ineffective incidents were cited than expected (15 percent).

Marketing: Teachers reported more incidents than expected randomly in the following categories:

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[12]Tables summarizing these data are included in the Technical Appendix, Tables T-XIII - T-XIV.

Category I-A (Procedural Aspects which Broadened the Options Available to Students): More ineffective incidents than expected (18 percent of the total incidents cited by marketing teachers).

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): More ineffective incidents than expected (11 percent).

Category II (Instructional Materials and Methods): More effective incidents than expected (12 percent).

Category III-B (Operational Aspects of Evaluation): More ineffective incidents than expected (11 percent).

Teachers reported fewer incidents than expected in the following categories:

Category IV (Student-Teacher Relationships): There were both fewer effective (5 percent) and fewer ineffective (2 percent) incidents in this category than expected.

Beginning Shorthand: Teachers reported more incidents than expected in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students): More ineffective incidents than expected (32 percent of the total number of incidents reported by teachers in this subject).

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): More effective incidents than expected (18 percent).

Advanced Shorthand: Teachers reported more incidents than expected in Category I-B (Procedural Aspects which Prescribed the Options Available to Students). Of all of the incidents reported in this subject, 29 percent were effective incidents in this category.

AVT Typewriting: Teachers cited more incidents than were expected randomly in the following categories:

Category IV (Student-Teacher Relationships): More ineffective incidents than expected (14 percent of all of the incidents reported by teachers in AVT-typing).

Category VI (Equipment and Instructional Media): More ineffective incidents than expected (7 percent).

Teachers reported fewer incidents than expected statistically in the following category:

Category I-A (Procedural Aspects which Broadened the Options Available to Students): Fewer ineffective incidents than expected (3 percent).

Text Typewriting: Teachers reported more incidents than expected statistically in the following categories:

Category I-B (Procedural Aspects which Prescribed the Options Available to Students): More effective incidents than expected (15 percent of the total number of incidents from teachers in this subject).

Category III-A (Content or Objective of Evaluation Materials and Methods): More effective incidents than expected randomly (9 percent).

Category IV (Student-Teacher Relationships): More effective incidents than expected (20 percent).

Teachers reported fewer incidents than expected in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students): Fewer effective incidents than expected (10 percent).

Category IV (Student-Teacher Relationships): Fewer ineffective incidents than expected (2 percent).

C. Comparisons of Critical Incidents within Individual Subject Areas

In order to identify aspects of specific courses which were considered by students and teachers to be particularly effective or ineffective, each separate subject was analyzed within the various schools in which it was taught. In a pattern similar to the previous section, two types of analyses were carried out:

1. Comparison of the quality of all incidents within a subject area as either effective or ineffective.

2. Comparison of the quality of all incidents as effective or ineffective within the eight main incident categories, again for each subject area.

For both types of analyses, the incidents from students and teachers have been combined. It may be recalled that teachers and students were contrasted in the first section of the critical incident analysis. In the second section, students and teachers were again separated for the analysis comparing all seven subject areas. Because these comparisons were considered to present the major differences between students and teachers, these groups were combined for ease of presenting the remaining analyses.

1. Comparison of the Quality of Incidents as Effective or Ineffective within Each Subject Area

Within each subject area except advanced shorthand, a significant chi-square indicated that the quality of the reported incidents differed from district to district. These differences will be briefly summarized for each subject area:

Accounting:	District No. 3: Fennimore	More ineffective incidents were reported than expected (57 percent of the incidents reported in this district), compared with fewer effective incidents (43 percent).
	District No. 9: Milwaukee	More effective incidents were reported than expected (91 percent of the incidents in this district in accounting), compared with fewer ineffective incidents (9 percent).
Business Mathematics:	District No. 3: Fennimore	More ineffective incidents were reported than expected (77 percent of the incidents reported in this district), compared with fewer effective incidents (23 percent).
	District No. 9: Milwaukee	More effective incidents were reported than expected (88 percent of the incidents in this district), compared with fewer ineffective incidents (12 percent).

Marketing:	District No. 4: Madison	More ineffective incidents were reported than expected (48 percent of the incidents reported in this district), compared with fewer effective incidents than expected (52 percent).
	District No. 6: Kenosha	More effective incidents than expected (92 percent) and fewer ineffective incidents (8 percent).
	District No. 8: Waukesha	More ineffective incidents were reported than were expected statistically (38 percent) and fewer effective incidents (62 percent). The majority of the incidents, however, were effective.
Beginning Shorthand:	District No. 9: Milwaukee	More ineffective incidents were reported than were expected (39 percent of the incidents in this district) and fewer effective incidents than expected (61 percent). The majority of incidents, however, reported by students and teachers combined was effective.
	District No. 11: Sheboygan and Manitowoc	More effective incidents were reported than expected statistically (92 percent) and fewer ineffective incidents (8 percent).
Advanced Shorthand:	There was not a significant difference between the frequency of effective and ineffective incidents reported in the two schools. In Sheboygan, 62 percent of the incidents were effective; in Manitowoc, 72 percent of the incidents reported were effective.	
AVT Typewriting:	District No. 5: Beloit and Janesville	More ineffective incidents were reported than expected randomly (56 percent) compared with fewer effective incidents (44 percent).
	District No. 8: Waukesha	More ineffective incidents were reported than expected (50 percent) compared with fewer effective incidents than expected (50 percent).

	District No. 11: Sheboygan	More effective incidents were cited than expected randomly (68 percent) and fewer ineffective incidents (32 percent).
	District No. 12: Appleton	More effective incidents were reported than expected (71 percent) and fewer ineffective incidents (29 percent).
Text Typewriting:	District No. 4: Madison	While the majority of incidents reported were effective, more ineffective incidents than expected were reported (43 percent) and fewer effective incidents than expected (57 percent).
	District No. 9: Milwaukee	More effective incidents were reported than expected (80 percent) and fewer ineffective incidents (20 percent).
	District No. 10: Fond du Lac	More effective incidents than expected randomly were reported by students and teachers (79 percent) and fewer ineffective incidents (21 percent).
	District No. 11: Manitowoc	More ineffective incidents were reported than expected (37 percent) and fewer effective incidents (63 percent). The majority of reported incidents from students and teachers, however, were still effective.
	District No. 15: Wausau	More effective incidents were reported than expected statistically (83 percent) and fewer ineffective incidents (17 percent).

2. Comparisons of the Quality of Incidents Within the Eight Main Incident Categories for Each Subject Area

In a manner similar to the above analyses, the incidents were compared across technical school districts to determine if different types and quality of incidents were reported within the same subject area. These comparisons resulted in statistically significant differences among the districts in all subject areas. The incidents from both students and teachers have been combined in these analyses.

These findings are summarized by subject area. Within each subject area, the incident frequencies which departed most from those expected if the distribution of incidents were uniform are summarized by main incident category.

Accounting:[13]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

More effective incidents were reported in District No. 9 than expected (29 percent of the incidents reported in this district in accounting). Fewer incidents than expected were reported as effective in this category in District No. 3 (14 percent of the incidents reported in this district in accounting).

Category IV (Student-Teacher Relationships)

More ineffective incidents were reported in this category than expected in District No. 3 (17 percent) and fewer effective incidents than expected (5 percent). In District No. 9, there were more effective incidents cited in this category than expected (23 percent) and fewer ineffective incidents (1 percent).

Business Mathematics:[14]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

There were more effective incidents in this category than expected in District No. 9 (25 percent of the incidents in this district). Fewer effective incidents than expected were reported in District No. 3 (4 percent).

Category II (Instructional Materials and Methods)

There were more effective incidents in this category than expected in District No. 9 (28 percent) and fewer effective incidents in this category than expected in District No. 3 (8 percent).

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[13]Table T-XV, the Technical Appendix, summarizes within each district the frequency counts and percentages of critical incidents reported in the eight main incident categories.

[14]Table T-XVI, the Technical Appendix, presents a summary of the critical incidents reported in business math in two districts in which it was offered.

Category IV (Student-Teacher Relationships)

More effective incidents (18 percent) and fewer ineffective incidents (3 percent) than expected were reported in District No. 9. In District No. 3, more ineffective incidents (4 percent) were reported in this category.

Marketing:[15]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

More ineffective incidents than expected were reported in District No. 4 (16 percent of the incidents cited in this district in marketing). Fewer effective incidents than expected were also reported in this category in District No. 4 (10 percent). In District No. 6, there were fewer ineffective incidents in this category than expected randomly (none).

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

In District No. 4, both more effective (17 percent) and more ineffective (14 percent) incidents were reported than expected. In District No. 6, fewer ineffective incidents than expected were described in this category (3 percent).

Category II (Instructional Materials and Methods)

There were more effective incidents than expected in this category in District No. 6 (27 percent). More ineffective incidents than expected randomly were reported in District No. 8 (10 percent).

Category III-A (Content or Objective of Evaluation Materials and Methods)

More effective incidents than expected were reported in District No. 6 (16 percent). Fewer effective incidents were reported in District No. 4.

Category III-B (Operational Aspects of Evaluation)

More effective incidents than expected were reported in District No. 8 (9 percent).

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[15]Table T-XVII in the Technical Appendix summarizes the critical incidents reported in all of the marketing courses.

Category IV (Teacher-Student Relationships)

More effective incidents than expected were reported in this category in District No. 6 (18 percent). Fewer effective incidents than expected were reported in District No. 4 (2 percent) and in District No. 8 (7 percent). In District No. 4, there were more ineffective incidents in this category than expected (8 percent).

Beginning Shorthand:[16]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

More effective incidents were reported in this category in District No. 11 (53 percent) and fewer effective incidents than expected were reported in District No. 9 (21 percent).

Category II (Instructional Materials and Methods)

More ineffective incidents than expected were reported in District No. 9 (11 percent). Fewer ineffective incidents than expected were reported in this category in District No. 11 (2 percent).

Advanced Shorthand:[17]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

There were more effective incidents in this category in Manitowoc than expected (38 percent of the incidents reported in this class) compared with fewer effective incidents than expected in Sheboygan (12 percent). (Both advanced shorthand classes were in District No. 11).

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[16]Table T-XVIII, the Technical Appendix summarizes the critical incidents reported in beginning shorthand in two districts.

[17]Table T-XVIX, the Technical Appendix summarizes the critical incidents reported in two advanced shorthand classes.

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

There were more effective incidents in this category in Sheboygan than expected (20 percent) compared with fewer effective incidents in Manitowoc (9 percent).

Category II (Instructional Materials and Methods)

While the frequencies in this category did not differ from those expected in the two classes, the largest proportion of the critical incidents reported as effective in Sheboygan (22 percent) were in this category.

AVT Typewriting:[18]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

More effective incidents than expected were reported in District No. 12 (36 percent). Fewer effective incidents than expected were reported in District No. 5 (17 percent).

More ineffective incidents were reported than expected in District No. 8 (10 percent). Fewer ineffective incidents than expected were reported in District No. 5 (2 percent).

Category II (Instructional Materials and Methods)

More effective incidents than expected were reported both in District No. 11 (15 percent) and District No. 12 (14 percent). Fewer effective incidents were reported in both District No. 5 (9 percent) and District No. 8 (7 percent).

More ineffective incidents than expected were reported in District No. 5 (15 percent). Fewer ineffective incidents than expected were correspondingly reported in both Districts No. 11 (5 percent) and No. 12 (6 percent).

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[18]Table T-XX, the Technical Appendix summarizes the critical incidents reported in the AVT-typewriting classes in four districts (District No. 5 included two schools).

Category III-A (Content or Objective of Evaluation Materials and Methods)

More ineffective incidents than expected were cited in District No. 8 (10 percent).

Fewer ineffective incidents than expected occurred in both Districts No. 11 (1 percent) and No. 12 (3 percent).

Category III-B (Operational Aspects of Evaluation)

More effective incidents than expected were reported in District No. 11 (6 percent).

More ineffective incidents than expected were reported in District No. 5 (4 percent).

Category IV (Student-Teacher Relationships)

More effective incidents than expected and also fewer ineffective incidents than expected were reported in Districts No. 11 (14 percent effective, 4 percent ineffective) and District No. 12 (12 percent effective, 7 percent ineffective). Fewer effective incidents than expected in this category were reported in District No. 3 (7 percent).

More ineffective incidents than expected were cited in District No. 5 (13 percent) and fewer effective incidents (8 percent).

Category VI (Equipment and Instructional Media)

More ineffective incidents than expected were reported in District No. 5 (14 percent of the incidents reported in this district). Fewer ineffective incidents than expected were reported in District No. 12 (2 percent).

Text Typewriting:[19]

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

More effective incidents than expected were reported in District No. 10 (30 percent of the incidents reported in this district).

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[19]Table T-XXI in the Technical Appendix summarizes the critical incidents reported in the text-typewriting classes in each of the five districts.

Fewer effective incidents than expected were reported in District No. 4 (5 percent of the incidents in this district in typing).

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

More effective than expected were reported in District No. 15 (11 percent). Fewer effective incidents than expected were reported in District No. 11 (4 percent).

More ineffective incidents were reported than expected in District No. 4 (11 percent). Fewer ineffective incidents than expected were reported in District No. 11 (none).

Category II (Instructional Materials and Methods)

More effective incidents than expected were reported in District No. 4 (23 percent) and District No. 15 (22 percent). Fewer effective incidents than expected were reported in District No. 11 (8 percent).

More ineffective incidents than expected were also reported in District No. 4 (16 percent). Fewer ineffective incidents than expected were reported in District No. 9 (4 percent) and District No. 15 (3 percent).

Category III-A (Content or Objective of Evaluation Materials and Methods)

More effective incidents than expected were reported in District No. 4 (9 percent). Fewer effective incidents than expected were cited in District No. 9 (2 percent).

Category IV (Student-Teacher Relationships)

More effective incidents than expected were reported in both Districts No. 9 (24 percent) and No. 15 (19 percent). Fewer effective incidents than expected in this category were reported in District No. 4 (8 percent) and District No. 10 (10 percent).

In District No. 10, there were also fewer ineffective incidents than expected in this category (none).

D. Comparisons of Critical Incidents Among Five Models of Individualized Instruction

As was discussed earlier, page 9, the 23 classes included in this study were described by five models which represented increasing degrees of individualized, self-paced instruction. The critical incidents obtained from both students and teachers were compared across these models to determine if the categories into which the incidents had been placed or their quality differed among the five models. As has been the case in the previous analysis sections, these critical incidents were examined using two types of basic incident classifications:

1. Comparison of the quality of the critical incidents as effective or ineffective among the five individualized instructional models.

2. Comparison of the quality of the critical incidents within each of the eight main incident categories and among the five individualized instructional models.

The findings from both analyses are presented separately. In making both types of comparisons, critical incidents from all seven subject areas and all ten technical school districts have been combined.

1. Comparison of the Quality of the Critical Incidents as Effective or Ineffective Among Five Individualized Instructional Models

A significant chi-square value indicated that there was a relationship between the instructional model describing a class and the quality of the incidents from classes in that model. Those frequencies which deviated most from the frequencies expected with a uniform distribution are summarized by model number:

Model No. 1: (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Fewer effective incidents were reported than expected (58 percent of the incidents in this model) and more ineffective incidents than expected (42 percent).

Model No. 2: (Object to develop students to designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at a variety of levels.)

More effective incidents than expected were reported (76 percent of the incidents reported in classes described by this model) and fewer ineffective incidents than expected (23 percent).

Model No. 3: (Objective to develop students to designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at various levels. Integrated remedial adjuncts to a fixed "main track" instructional sequence.)

There were no marked deviations of observed frequencies from expected frequencies of effective and ineffective incidents. The majority of the incidents reported in the class described by this model was effective, 63 percent.

Model No. 4: (Objective to develop students to designated criteria with provision for student selection of course-unit progression. Duration of progression flexible.)

More effective incidents (73 percent) and fewer ineffective incidents (22 percent) than expected.

Model No. 5: (Objective to develop students to individually selected criteria for each student and the use of different instructional sequences for each one. Pretesting and placement are incorporated into the construction of the instructional sequences.)

More effective incidents (80 percent) and fewer ineffective incidents (20 percent) than expected.

2. Comparison of the Quality of the Critical Incidents Within each of the Eight Main Incident Categories and Among the Five Individualized Instructional Models

A significant chi-square value indicated that there was a difference in the incident categorizations for the five models. Those incident frequencies which deviated most markedly from these frequencies expected randomly are summarized by the instructional models:

Model No. 1: (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

More incidents were observed than expected in the following incident categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Ineffective incidents (8 percent of those reported in this Model)

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Effective incidents (8 percent)

Category II (Instructional Materials and Methods)

Ineffective incidents (9 percent)

Category IV (Student-Teacher Relationships)

Ineffective incidents (8 percent)

Category V (Student-Student or Group Relationships)

Ineffective incidents (2 percent)

Category VI (Equipment and Instructional Media)

Ineffective incidents (4 percent)

Fewer incidents than expected were observed in the following incident categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (19 percent)

Category II (Instructional Materials and Methods)

Effective incidents (14 percent)

Category III-A (Content or Objective of Evaluation Materials and Methods)

Effective incidents (4 percent)

Category IV (Student-Teacher Relationships)

Effective incidents (8 percent)

Model No. 2: (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels.)

More incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (28 percent of the incidents reported in Model No. 2 classes)

Category IV (Student-Teacher Relationships)

Effective incidents (13 percent)

Fewer incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Ineffective incidents (4 percent)

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Effective incidents (5 percent)

Category II (Instructional Materials and Methods)

Ineffective incidents (5 percent)

Category IV (Student-Teacher Relationships)

Ineffective incidents (3 percent)

Model No. 3: (Objective to develop students to designated criteria by altering the duration of instruction. Fixed track; initial pretesting and placement at various levels. Integrated remedial adjuncts to a fixed "main track" instructional sequence.)

More incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Ineffective incidents (10 percent of the incidents in Model No. 3 classes)

Category II (Instructional Materials and Methods)

Ineffective incidents (14 percent)

Category III-B (Operational Aspects of Evaluation)

Ineffective incidents (6 percent)

Category IV (Student-Teacher Relationships)

Effective incidents (16 percent)

Fewer incidents than expected randomly were observed in the following category:

Category II (Instructional Materials and Methods)

Effective incidents (8 percent)

Model No. 4: (Objective to develop students to designated criteria with provision for student selection of course-unit progression. Duration of progression flexible.)

More incidents than expected were observed in the following categories:

Category II (Instructional Materials and Methods)

Effective incidents (24 percent of the incidents in Model No. 4 classes)

Category III-A (Content or Objective of Evaluation Materials or Methods)

Effective incidents (13 percent)

Category III-B (Operational Aspects of Evaluation)

Effective incidents (6 percent)

Fewer incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (17 percent)

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Effective incidents (4 percent)

Model No. 5: (Objective to develop students to individually selected criteria for each student and the use of different instructional sequences for each one. Pretesting and placement are incorporated into the construction of the instructional sequences.)

More incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (26 percent of the incidents in Model No. 5 classes)

Category IV (Student-Teacher Relationships)

Effective incidents (24 percent)

E. Comparisons of Critical Incidents Among Four Class Scheduling Patterns

As was previously discussed, page 11, the 23 classes included in this study were placed into four descriptive scheduling patterns. The critical incidents reported by both students and teachers were compared for these four scheduling arrangements to determine if the categories or the quality of the critical incidents differed among the schedules.

As in the previous comparisons, these analyses were of two basic types:

1. Comparison of the quality of the critical incidents as effective or ineffective among the four scheduling patterns.

2. Comparison of the quality of the critical incidents within each of the eight main incident categories and among the four scheduling patterns.

The findings from both of these analyses are presented separately. In making both comparisons, critical incidents from all seven subject areas and all ten technical school districts have been combined.

1. Comparison of the Quality of the Critical Incidents as Effective or Ineffective Among Four Scheduling Patterns

A significant chi-square value indicated that the quality of the incidents as effective or ineffective differed across the four scheduling arrangements. Those deviations of observed frequencies from expected frequencies for a uniform distribution are summarized below by scheduling pattern:

Schedule No. 1: (All classes scheduled to meet at a designated time.)

The frequencies of incidents in this scheduling arrangement did not differ markedly from the expected frequencies. Of the total 641 incidents within this schedule, 68 percent were effective and 32 percent ineffective.

Schedule No. 2: (Some classes scheduled to meet at a designated time; other classes released to permit independent student work.)

Fewer effective incidents were reported than expected (56 percent) and more ineffective incidents than expected (44 percent).

Schedule No. 3: (All classes scheduled to meet at a desgnated time plus laboratory facilities were available to students outside of regular class hours.)

More effective incidents than expected were reported (83 percent) and fewer ineffective incidents than expected (17 percent).

Schedule No. 4: (No classes scheduled; students may attend an open laboratory at hours of their own choosing.)

Fewer effective incidents were reported than expected (60 percent) and more ineffective incidents than expected statistically (40 percent).

2. Comparison of the Quality of the Critical Incidents Within Each of the Eight Main Incident Categories and Among Four Scheduling Patterns

A significant chi-square value indicated that the type and the quality of incidents did differ across the four scheduling patterns.

Those observed frequencies which differed most markedly from the frequencies expected randomly are summarized by scheduling patterns:

Schedule No. 1: (All classes scheduled to meet at a designated time.)

More critical incidents than expected were observed in the following categories:

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Ineffective incidents (6 percent of the incidents reported in Schedule No. 1 classes.

Category II (Instructional Materials and Methods)

Effective incidents (19 percent)

Category III-B (Operational Aspects of Evaluation)

Effective incidents (5 percent)

Ineffective incidents (3 percent)

Category IV (Student-Teacher Relationships)

Effective incidents (13 percent)

Fewer critical incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (12 percent)

Category VI (Equipment and Instructional Media)

Ineffective incidents (1 percent)

Schedule No. 2: (Some classes scheduled to meet at designated times; other classes released for independent student work.)

More critical incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Ineffective incidents (12 percent of the incidents reported in Schedule No. 2 classes)

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Ineffective incidents (9 percent)

Effective incidents (13 percent)

Category IV (Student-Teacher Relationships)

Ineffective incidents (8 percent)

Fewer incidents than expected were reported in the following following categories:

Category II (Instructional Materials and Methods)

Effective incidents (12 percent)

Category III-B (Operational Aspects of Evaluation)

Effective incidents (1 percent)

Ineffective incidents (1 percent)

Category IV (Student-Teacher Relationships)

Effective incidents (4 percent)

Schedule No. 3: (All classes scheduled to meet at designated times, plus laboratory facilities were available to students outside of regular class hours.)

More critical incidents than expected were observed in the following catetories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (26 percent of the incidents reported in Schedule No. 3 classes)

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Effective incidents (10 percent)

Category II (Instructional Materials and Media)

Effective incidents (20 percent)

Category III-A (Content or Objective of Evaluation Materials or Methods)

Effective incidents (10 percent)

Fewer critical incidents than expected randomly were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Ineffective incidents (2 percent)

Category II (Instructional Materials and Methods)

Ineffective incidents (5 percent)

Category III-B (Operational Aspects of Evaluation)

Ineffective incidents (1 percent)

Category IV (Student-Teacher Relationships)

Ineffective incidents (1 percent)

Category VI (Equipment and Instructional Media)

Ineffective incidents (3 percent)

Schedule No. 4: (No classes scheduled; students attended an open laboratory at hours of their own choosing.)

More critical incidents than expected were observed in the following categories:

Category I-A (Procedural Aspects which Broadened the Options Available to Students)

Effective incidents (26 percent of the incidents reported in Schedule No. 4 classes)

Category II (Instructional Materials and Methods)

Ineffective incidents (10 percent)

Category III-B (Operational Aspects of Evaluation)

Ineffective incidents (3 percent)

Category IV (Student-Teacher Relationships)

Ineffective incidents (8 percent)

Category VI (Equipment and Instructional Media)

Ineffective incidents (8 percent)

Fewer critical incidents than expected were observed in the following categories:

Category I-B (Procedural Aspects which Prescribed the Options Available to Students)

Effective incidents (2 percent)

Ineffective incidents (2 percent)

Category II (Instructional Materials and Methods)

Effective incidents (12 percent)

Category III-A (Content or Objective of Evaluation Materials or Methods)

Effective incidents (3 percent)

Summary

The preceding review of the findings of this study was divided into two main sections corresponding to the two major types of analysis performed. The first section introduced those findings from the analysis of student course completion data and other student background information. Each student's completion or achievement in a given course was measured by two techniques. The first was the grade received in a course or a student's completion status of "incomplete" or "withdrawal". The second measure of achievement was the teacher's categorization of a student's relative success in an individualized instructional section.

The second major type of analysis was of critical incident data from both students and teachers. These incidents identifying particularly effective or ineffective course aspects were contrasted between students and teachers and among the different subject areas and technical schools.

Summary Report
Project No. 19-008-151-222

AN EVALUATION THROUGH FIELD TESTING OF INDIVIDUALIZED INSTRUCTION MATERIALS IN WISCONSIN POST-SECONDARY INSTITUTES

Investigators

Dr. Judith J. Lambrecht
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The University of Wisconsin
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July 31, 1972

Summary Report of a Study Conducted with Support from the Wisconsin Board of Vocational, Technical and Adult Education

PART IV
FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

A prominent concern in several of the technical institutes of the Wisconsin Vocational, Technical and Adult Education system has been that of finding a practical means of implementating the ideal of individualized student instruction. With the objective of determining the relative effectiveness of the various individualized instructional approaches now being used in selected business courses, 23 classes in five subject areas were evaluated during the fall of 1971.[1]

As more technical schools continue to examine the experiences of others in providing more attention to individual student needs, this research was designed to permit an assessment of the current practices. The strengths or weaknesses of on-going classes were to be identified as practices to be encouraged or avoided by others. This research project was supported by a grant secured by the University of Wisconsin, Madison, from the Wisconsin Board of Vocational, Technical and Adult Education.

These 23 classes were being taught in twelve different schools in ten of the Wisconsin Vocational, Technical and Adult Education districts. The subject areas included those of accounting, business mathematics, marketing, shorthand (beginning and advanced) and typewriting (AVT and textbook approaches). These five subject areas and the VTAE districts in which the 23 classes were located are summarized in Table XXIV.

The primary means of evaluation included field observations of each one of the 23 classes and interviews with selected students in each class.[2] Achievement data were collected for each student enrolled in a course. The semester achievement resulting for 1204 students in the 23 classes was measured by two different techniques. First, the course completion status of each student was stated as either a letter grade or as an "Incomplete" or a course "Withdrawal." Second, each student was characterized by his instructor according to the success he was judged to have experienced in an individualized instructional situation as contrasted to a more traditional or structured class. On the basis of each teacher's evaluation, every student was placed into a "positive," "neutral," or "negative" category.[3]

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[1]These 23 classes represented all the classes which were identified in the fall of 1971 using individualized instructional techniques in the areas of typewriting, shorthand, marketing and accounting. Several of the courses in the areas of office machines and calculating machines were using individualized instructional methods but they were not included in this study.

[2]Descriptions of each of the 23 classes are included in the Appendix.

[3]Although not directly a part of the analysis, shorthand writing speeds and straight-copy typewriting speeds were obtained in these courses for all students completing the course. These skill achievement levels have been summarized in the Appendix, Tables XXVI and XXVII.

TABLE XXIV

FIVE SUBJECT AREAS AND VTAE DISTRICTS IN WHICH THE SELECTED COURSES WERE TAUGHT

Subject	VTAE District and City of School
Accounting	District No. 3, Fennimore
	District No. 9, Milwaukee
Business Mathematics	District No. 3, Fennimore
	District No. 9, Milwaukee
Marketing	District No. 4, Madison
	District No. 6, Kenosha
	District No. 8, Waukesha (2 classes)
Shorthand	
Beginning	District No. 9, Milwaukee
	District No. 11, Sheboygan
	District No. 11, Manitowoc
Advanced	District No. 11, Sheboygan
	District No. 11, Manitowoc
Typewriting	
AVT	District No. 5, Beloit
	District No. 5, Janesville
	District No. 8, Waukesha
	District No. 11, Sheboygan
	District No. 12, Appleton
Text	District No. 4, Madison
	District No. 9, Milwaukee
	District No. 10, Fond du Lac
	District No. 11, Manitowoc
	District No. 15, Wausau

The objective of the interviews with students, as well as those with teachers, was to collect critical incident data. These incidents were events which had occurred in a given class and which were considered by the student or teacher to represent particularly effective or ineffective course aspects. Each incident was analyzed and placed into one of eight main categories as follows:

I-A - Procedural aspects of a course which broadened the options available to students

I-B - Procedural aspects of a course which prescribed the options available to students

II - Course aspects associated directly with instructional materials or methods

III-A - Course aspects associated with evaluation materials or methods

III-B - Course aspects associated with evaluation procedures

IV - Course aspects associated with student-teacher relationships

V - Course aspects associated with student-student relationships

VI - Course aspects associated with equipment or other instructional media

The 23 classes which comprised the sample of students were further characterized by two descriptive tools. The first was designed to permit examination of the degree of individualized instructional options available to students. Five models of individualized instructional situations were developed for this purpose. The second tool was to permit comparisons of varying degrees of flexibility in scheduling arrangements. Four scheduling patterns were developed for this purpose.

FINDINGS AND CONCLUSIONS

The conclusions which may be drawn from the analysis of the data from these 23 classes have been summarized in six main areas. First, those conclusions which were not directly associated with a particular subject area are discussed.

Second, the attitudes of students in all of the individualized courses were compared with the attitudes of teachers. These attitudes were those expressed through the critical incidents reported by both teachers and students.

Third, those findings directly related to the separate subject areas are discussed for each one of the seven areas included in this study (two

of the five areas being subdivided): accounting, business mathematics, marketing, beginning shorthand, advanced shorthand, audio-visual-tutorial typewriting, and text-typewriting.

Fourth, those findings which were related to comparisons of the five models used to describe the individualized instructional situations are presented with their associated conclusions.

Fifth, those findings and conclusions related to comparisons of the four scheduling patterns used in the 23 classes are discussed.

Sixth, and last, some personal observations and conclusions of the investigator have been summarized. While drawn from the observations and the data of this study, these conclusions were not related to a specific analysis as were the previous findings.

I. General Conclusions of the Study

The general conclusions of the study are those which were not directly related to a single subject area. Within this broad area, conclusions have been organized into six sections. The first section of conclusions summarizes the general course completion findings.

The second section contains those conclusions related to student achievement as measured by both grades and teacher categorizations. Included here are the relationships between these two measures of student achievement and the relationship of previous course experience to student achievement.

Third, the conclusions related to early course completion are presented.

Fourth, the findings and conclusions related to different student majors and programs of enrollment are summarized.

Fifth, the effects associated with high school graduation, other educational experiences and students' ages are summarized.

Sixth, and last, the relationships between student achievement and the number of hours which a student devoted to a particular course are summarized. Also included in this section are the findings associated with the extent of student enrollment in other courses and student employment outside of school.

A. Student Course Completion Status

The total number of students who completed each individualized course were summarized by subject areas, technical school districts, and by each separate course. These data were presented in Tables V through IX on pages 25-37 of the Findings and Analysis chapter. Within the separate classes included in this study, the proportion of students who completed

all of the course requirements within one semester ranged from 100 percent in one typewriting class to 19 percent in a business mathematics class. Those students who did not complete a given course within the semester received grades of either "Incomplete" or "Withdrawal."

In six of the 23 classes, approximately one out of five of the students completed the course requirements within one semester. In another eight classes, two out of five, or up to one-half, of the students completed the course. In 16 of the 23 classes, therefore, 60 percent of the students or less completed all of the course requirements at the end of the fall semester. In the remaining seven classes, four out of five of the students or more had completed the course.

While the reasons for these extreme variations in course completions are discussed in relation to the specific subject areas, it is apparent that in several of the individualized instructional situations a large proportion of students were not finishing a semester's course work within that time period. Whether this large number of incompletions is desirable or not, it is clear that provisions must be made within administrative structures for extending course enrollment times for large numbers of students.

B. Student Achievement Measures

The two different measures of student achievement were both found to be significantly related to the teacher who assigned the grade or who made the categorization. This finding was considered to be a reflection of the prominence of the teacher in any instructional situation. It is also, however, a reflection of different grading standards and the extent to which other course aspects varied from class to class.

The relationship between individual teacher, however, and the category into which they placed students was considered to be an indication of more than the effect of an instructor on students' course achievement. Each teacher rated all of the students in his class with respect to their success in an individualized instructional situation. A student was thus placed into a positive, neutral, or negative category. While this very subjective judgment was found to be related to a student's course grade, it was also considered to be an important reflection of a teacher's general attitude toward his course organization. The tendency for a teacher to place large numbers of students in either a negative or a positive category appeared to reflect a teacher's satisfaction or dissatisfaction with the individualized instructional situation.

The attitudes of teachers as a whole to student achievement in the individualized instructional situations was further evident when related to the different measures of student course completion. Teachers placed more students with A and B grades in the positive category than they did students with lower grades or course "Incompletes" and "Withdrawals". More students with "Incompletes" were placed in the negative category. From this teacher judgment it may be inferred that, on the whole, it has not always been to a student's advantage to receive the status of

"Incomplete". The greater assignment of neutral categories to students who withdrew from a course was primarily a reflection of a teacher's not seeing these students often enough to make a judgment of their potential course achievement. The reasons for student withdrawals from a course were not ascertained.

Previous course experience. One particular student characteristic was found to be significantly related to student course grades and completion status and also to the teacher categorizations of students. This was a student's previous experience in the same subject area as the course in which he was enrolled. Those students who had had previous course experience received more B's and C's than those without such experience. They also received fewer "Incompletes." Students with previous course experience were also more likely to be placed by their teachers into the positive category with respect to their success in the individualized instructional situation.

Students who had not had previous course experience, on the other hand, received fewer B's and C's and more "Incompletes." These were also more likely to be categorized in the negative category with respect to their success in an individualized instructional situation. From these findings it seemed apparent that the students who were not taking courses as pure "beginners" were at an advantage in individualized instructional classes. This advantage continued to exist when the separate subject areas of accounting, beginning shorthand, and typewriting were analyzed.

B. Early Course Completion

Early completion in a course, or completion before the end of the fall, 1971, semester, was not related to the particular subject area in which a student was enrolled. There was a relationship, however, between early course completion and the technical school which a student was attending. This relationship may be best accounted for by the special characteristics of the courses within these districts. Primarily, the existence of pretesting and advanced placement within a course were responsible for such early completion.

The desirability of early course completion was indicated by the tendency of teachers to place these students in a positive category with respect to their achievement in the individualized class. This was a marked advantage as contrasted to what would have been possible for these students in a traditional class.

C. Student Majors and Programs of Enrollment

A motivational aspect was considered to be reflected in the finding that students majoring in fields directly related to the individualized course in which they were enrolled were more likely to receive grades of "A". What may also have affected this occurence of higher grades was the likelihood that students taking courses in their major area may also have had previous course experience in their subject.

Going beyond a students major area of study, the program in which he was enrolled was also related to his course achievement. Students in the two-year Associate Degree programs received more A's in their courses than did students in the one-year Vocational Diploma programs. Not only did the students in the one-year programs receive fewer A's, but they were also more likely to withdraw from a course than were the students in the two-year programs. This difference in achievement may be an indication of different learning objectives or learning capabilities of students who choose a one-year program rather than an Associate Degree program.

D. High School Graduation and Attendance at Other Schools

A significant relationship was noted between the achievement of students in an individualized course and their status as high school graduates. Those students who had graduated from high school received more A's and B's than did non-graduates. Further, these students who had not graduated from high school received a larger proportion of "Incompletes" and course "Withdrawals."

Also related to this educational achievement measure, students who had attended other educational institutions since high school received more A's and experienced fewer "Incompletes" than did students who had not attended other schools.

These findings related to high school graduation and attendance at other educational institutions would both support the conclusion that students who have successively completed other educational programs and who have chosen to continue this work are also more successful in the individualized instructional situations. Such a background would indicate not only a degree of motivation resulting from earlier school success, but it may also indicate the possession of those capabilities which can lead to continued success in school settings. The individualized situations have not, apparently, compensated for the lack of preparation, motivation, or general ability of students who have had minimal school success or previous experience.

Students' Ages. It might be anticipated that the age of a student would also be reflected in his course accomplishment, especially since older students would also be those who had been able to attend other educational institutions. There was, however, found to be no significant relationship between a student's age and his course achievement. While many teachers commented personally that the maturity of a student was related to the ease with which he coped with an open, flexible situation, such maturity was not measured by a student's age.

E. Student Hour Commitments, Course Loads, and Outside Employment

In certain open-laboratory courses in typewriting and shorthand, a tally was kept of the number of hours which a student spent working on a subject in the open-laboratory during the semester. The number of hours which a student spent in the open-laboratory courses was found to be significantly related to his achievement. While students in some cases were

able to satisfy the requirements of a course in less than 40 hours, a range of 40 to 100 hours was average in courses which were normally taught in 90 hours per semester. Corresponding to this general time requirement for completing a course, those students with "Incomplete" status had spent markedly fewer hours in the open-lab.

This hour trend for the "Incomplete" status supported the common statement from students in this position that they found it difficult at time to spend sufficient time in the lab. Lack of such self-discipline may in many instances been responsible for the "Incomplete" status of a student. Further, the tendency for teachers to place student with "Incomplete" grades in the negative category with respect to their general success in an individualized course also supported a similar conclusion. A lack of sufficient self-discipline or sufficient course structure may account for a large number of incompletes in certain courses.

Since the number of hours which a student spent in a course was related to his course accomplishment, it might be expected that the number of hours which a student could devote to a single course would also affect his success. This time was affected by the number of other courses in which he was enrolled and number of hours which he was scheduled to attend class. In relating both the number of courses and the number of course-hours of each student to his course achievement, however, it was found that those students with the fewest number of courses or scheduled hours did not have an observable advantage. On the contrary, students with the heavier course loads were found to receive a higher proportion of the A, B, and C grades and fewer course "Incompletes". Likewise, there was no tendency for those students with fewer scheduled class hours to receive higher grades in their individualized courses.

The employment status of a student was again found to be related to his achievement in a manner similar to his number of courses and scheduled class hours. Students with 11 to 20 hours of employment per week outside of school received more A's and fewer "Incompletes" than other students. Students who were working fewer hours or who were not working at all did not appear to be at an advantage even in self-paced situations in which they might seemly be able to devote more time to school work.

II. Comparison of Student and Teacher Attitudes

Critical incident data were collected from both students and teachers. The events which both groups reported represented particularly effective or ineffective course aspects. The quality of an incident as effective or ineffective was the judgment of the person reporting the event. A total of 1226 different incidents were reported by students, and 378 different incidents were reported by teachers. Each of these incidents was placed into one of eight major categories depicting the course aspects with which it was associated.[4]

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[4]All of the specific incident categories summarized in the Appendix Table XXV, with a tabulation of the number of incidents in each category.

The incidents reported by students and teachers were compared to determine whether they differed with respect to the type or the quality of the incidents which they reported.

Students were found to be more likely than teachers to identify incidents in two categories as particularly important: those procedural aspects of a course which broadened the instructional options, and instructional materials and methods. On the other hand, teachers were more likely to cite incidents dealing with the following course aspects: the content of evaluation materials, testing procedures, and student-teacher relationships.

When only the quality of the critical incidents as effective or ineffective was considered, students were observed to report more effective incidents proportionately than were teachers. Students, therefore, may be judged to have responded more favorably to the individualized instructional situations than did teachers.

Students were more likely than teachers to report effective incidents dealing with course procedures which broadened their instructional options. Teachers, on the other hand, were more likely to cite ineffective incidents in this category. Students were also more likely than teachers to cite effective incidents dealing with instructional materials and learning activities.

In the incident categories associated with the content of evaluation materials and the operational aspects of testing, teachers were more likely than students to report ineffective incidents. In the category of student-teacher relationships, teachers were also more likely to report ineffective incidents than were students. These findings indicate the greater sensitivity of teachers to the quality of testing materials, the testing situations themselves, and the change in their relationships with students in the individualized class.

III. Separate Subject Area Conclusions

Seven separate subject areas were identified for the purposes of analysis: accounting, business mathematics, marketing, beginning shorthand, advanced shorthand, audio-visual-tutorial (AVT) typewriting, and text-typewriting. The conclusions which may be drawn from the analysis both of student achievement and critical incidents have been combined for each subject area.

A. Accounting

Student Achievement Analysis. Two accounting classes were included in this study: one in VTAE District No. 3 (Fennimore) and one in VTAE District No. 9 (Milwaukee). When accounting was contrasted with other subject areas, more A's were earned in these classes and also more course "Incompletes" and "Withdrawals." The larger number of A's was observed to have occurred in District No. 3, while the larger number of non-completions was in District No. 9. In these two classes the proportions of

students who completed all of the course requirements by the end of the fall semester were 24 percent in District No. 9 and 63 percent in District No. 3.

This difference in course completion may be accounted for not only by the differences in the student body from an agricultural district to an urban area, but also by the enrollment pattern in Milwaukee. A long-standing practice in this district has been to permit students to enroll in an individualized course on any Monday during the semester. This continuous student enrollment automatically increased the number of students who had not completed the course at the end of what was normally the fall semester.

Critical Incident Analysis. When the critical incidents reported by accounting students were compared with those in other subject areas, more effective incidents, proportionately, were found to be reported.

When just the two accounting classes were contrasted, effective incidents dealing with procedural aspects of the course were found to come largely from District No. 9. Also in this district, more effective incidents than expected were reported in association with student-teacher relationships. In District No. 3, more ineffective incidents were reported in this latter category. There were, in fact, more ineffective incidents than expected randomly in District No. 3 than No. 9.

While not apparent in the critical incidents themselves, the role of the instructional materials in these two courses was considered to have made a difference in the degrees of satisfaction expressed. Different accounting texts were used in these classes, and the difficulty of the text in District No. 3 was considered by the teacher to have affected the ease with which it could be used independently by the students. In District 9, in addition to the difference in textbook, one other aspect may have contributed to the greater satisfaction of the teacher and the students. As students appeared to need extra help, the teacher made provision for small group discussions which were teacher-led. Both the teacher and the students cited this activity as a particularly effective course aspect.

B. Business Mathematics

Student Achievement Analysis. Two business mathematics classes were included in this study: one in VTAE District No. 3 (Fennimore), and one in VTAE District No. 9 (Milwaukee). When student achievement in these courses was compared with all other subject areas, more "Incompletes" were observed. Again, this large proportion was largely due to the class in District No. 9. As was the case in accounting, school policy permitted enrollment in this on any Monday throughout the semester; this was judged to be primarily responsible for this large proportion of "Incompletes". The proportion of students in these two classes who completed all of the course requirements was 83 percent in District No. 3 and 19 percent in District No. 9.

When the teacher categorizations of students were compared across all subjects, more negative categories were observed in business math than expected randomly. These negative categories were predominately made in District No. 3, whereas in District No. 9, more positive categorizations were made of student achievement by the teacher. The reasons for these marked differences in the teachers' judgment of the students' success in an individualized instructional situation became apparent in the critical incident analysis.

Critical Incident Analysis. In the two business math classes combined, students reported more effective than ineffective incidents . In District No. 3, however, a larger proportion of ineffective incidents were reported by both students and the teacher. In District No. 9, a relatively larger proportion of effective incidents were cited by students and the teacher.

In District No. 9 the higher degree of both teacher and student satisfaction was found to result in three main categories of incidents: the procedural aspects which broadened the instructional options of students, such as self-pacing and the flexibility of the course starting-point; instructional materials; and student-teacher relationships. In District No. 3, there were fewer effective incidents dealing with course procedural aspects. There were also fewer effective incidents associated with instructional materials and more ineffective incidents associated with student-teacher relationships.

In addition to the pretesting which was conducted in District No. 9, but not in No. 3, the instructional materials were different. In Milwaukee these materials had been prepared by the instructor expressly to promote independent student progress. Both the pretesting of students to identify their appropriate course starting point and the ease with which the students could use the materials made it easier for the teacher to work individually with those students needing assistance.

On the contrary, in District No. 3, the textbook was not designed expressly for independent student work. Many students needed supplementary explanations from the teacher as they experienced difficulty with the material. While the classes in both schools were of approximately the same size, the teacher commented in District No. 3, in particular, that the number of students prohibited satisfactory explanations on a one-to-one basis. The difficulty of the textbook for independent student work, and possibly the lack of pretesting, prevented the teacher from being able to use his time most effectively.

C. Marketing

Student Achievement Analysis. Four different marketing courses were included in this study: one in VTAE District No. 4 (Madison, Salesmanship); one in VTAE District No. 6 (Kenosha, Merchandise Display); and two in VTAE District No. 8 (Waukesha, Non-Textiles and Fashion Fabrics). When these courses as a group were compared with the other six subject areas, more grades of "A" were observed than expected. This skewed distribution of "A's" may have been the result of one marketing class in which only

the grades of "A" and "Incomplete" were used. More grades of "Incomplete" were also observed, and these were identified as coming primarily from District No. 4. The proportion of students in all four classes who completed the course requirements by the end of the semester ranged from 37 percent in Madison; 42 percent in Waukesha (Non-Textiles); 82 percent in Waukesha (Fashion Fabrics); and up to 87 percent in Kenosha.

When the four classes were compared with respect to the teacher-categorizations of students, two classes differed most from the other two. In District No. 6, more positive categorizations were made of students' achievement in the individualized situation. In District No. 4, on the other hand, more negative categorizations were made. The possible reasons for these differences in teacher's attitudes became more apparent in the critical incident analysis.

Critical Incident Analysis. While the incidents reported by students were largely of effective instances, teachers reported slightly more ineffective than effective incidents. In a manner similar to that of the teachers' categorizations of students, more effective incidents were observed to come from District No. 6 and more ineffective incidents from District No. 4. While the majority of the incidents cited in District No. 8 were effective, the proportion of these incidents was less than expected randomly.

In District No. 4, those incidents which both the teacher and students reported as effective or ineffective were largely clustered in two categories: procedural aspects which both broadened and prescribed the instructional options available to students. Those procedural aspects which were ineffective were related to the students' and the teacher's dissatisfaction with the procedure for checking completed instructional units. Sufficient teacher-time was not available to check all of the work quickly in the student-teacher conferences. On the other hand, those parts of the course which the students considered to be most effective were related to the group meetings and discussions which were held once a week.

In District No. 6, the most prominent feature was the choices which students were given in the several displays which they were assigned to construct during the semester. The category of instructional materials and learning activities, therefore, was observed to contain more effective incidents than expected. Other particularly effective aspects of this course were those associated with student-teacher relationships. This was cited most often in reference to the teacher's evaluation of student's projects.

In District No. 8, there were also found to be more incidents than expected associated with instructional materials and learning activities. In the Non-Textiles course, in particular, students were pleased with the option of choosing the topics of the units which they were to study. There were, however, also more ineffective incidents in this category. This was considered to be primarily due to two factors: the volume of work required of students in each unit, and the lack of sufficient resource materials in the classroom for certain of the units.

Another particularly effective category of critical incidents in District No. 8 was that of the operational aspects of testing. This was considered to be due to the choice which students were given of taking oral or written tests over their unit work. The category of the content of evaluation materials, on the other hand, was cited more frequently in District No. 6. Here students were tested in those specific areas of merchandise display in which their previous experiences had indicated a weakness. Students considered the construction of displays in this kind of testing situation to be particularly effective.

D. Beginning Shorthand

Student Achievement Analysis. Three classes of beginning shorthand were included in this study: one in VTAE District No. 9 (Milwaukee); and two in VTAE District No. 11 (Sheboygan and Manitowoc). When these three classes were combined and compared with course completion data in all of the subject areas, more "Withdrawals" were observed in beginning shorthand in relation to other subjects. The proportion of students who completed all of the course requirements by the end of the fall semester ranged from 26 percent in Manitowoc; 35 percent in Milwaukee; and up to 63 percent in Sheboygan.

With respect to the teachers' judgment of students' success in the individualized instructional situation, there were more negative categorizations than expected in relation to other subject areas. The largest proportion of these negative categories were observed to be in District No. 9. On the other hand, more positive categories than expected were observed in District No. 11.

Several course features may have accounted for these differences in student achievement and teacher categorizations. The scheduling pattern in Manitowoc was different from the other two classes. Here the students met at a designated hour in an open-laboratory, at which time the teacher gave her primary attention to the beginning shorthand students. In both Milwaukee and Sheboygan the students met as a class at a designated time. In Sheboygan, however, students had access to shorthand dictation facilities at hours other than their class time.

While other reasons for the differences in the three classes may become more apparent as the critical incidents are examined, an important difference in these classes was not shown by the data themselves. This was the possible difference in basic shorthand aptitude possessed by the students in these beginning shorthand classes. Shorthand has long been recognized as a difficult subject for large numbers of students and one in which high dropout rates have been a recurring phenomenon. In District No. 9, in particular, it was judged by the teacher that an organized testing and guidance program for beginning shorthand students would have prevented the enrollment of several students who were experiencing difficulty in their individualized study of the subject. For these students it was not considered an advantage to be able to extent their study of shorthand theory over long periods of time.

The instructional situation in District No. 9 was different in one other important respect. In District No. 11 in both classes, the students enrolled in beginning shorthand included students in both the one-year Vocational Diploma program and the two-year Associate Degree program. In District No. 9, however, the individualized course in beginning shorthand was restricted only to students in the one-year program. Another finding of this study has already indicated that students in the one-year programs experience relatively less success in the individualized courses. It may be that in District No. 9 those students who are most likely to profit from an individualized study of shorthand have not been permitted this option.

Critical Incident Analysis. Shorthand students reported relatively more effective critical incidents than did the shorthand teachers when contrasted with other subject areas. Corresponding to the teacher categorizations of students in each beginning shorthand class, there was a larger proportion of negative incidents in District No. 9 than in District No. 11.

The largest proportion of effective incidents was observed in the category of procedural aspects which broadened the options available to students. The types of incidents cited most often in this category were those involving the ability of the students to proceed through shorthand theory at their own pace and their ability to control the use of shorthand dictation equipment.

Those procedural aspects which prescribed the instructional options available to a students were also cited more frequently than expected randomly as effective incidents. These incidents were largely those which involved small groups of students either taking dictation from the teacher or reading shorthand notes orally.

Fewer effective incidents in these procedural categories were observed in District No. 9. In this district there were also more ineffective incidents than expected randomly associated with instructional materials. Again, the use of the individualized instruction technique in this district was considered inappropriate for several of the students. As a means of remedying this in the next semester, students were given the choice of studying shorthand individually or of entering a teacher-paced group.

E. Advanced Shorthand

Student Achievement Analysis. Two classes of advanced shorthand were included in this study; both in VTAE District No. 11 (Sheboygan and Manitowoc). There were found to be no significant differences either between these two classes or between advanced shorthand and other subject areas with respect to the course completion status of the students. In Sheboygan, 73 percent of the students completed the course requirements by the end of the semester; in Manitowoc, 53 percent. The majority of the teacher-categorizations of students in these classes were positive. Students were judged to be making more progress than a more structured class

might have permitted.

Critical Incident Analysis. Both students and teachers reported more effective than ineffective critical incidents in these two courses. The highest proportion of critical incidents were associated with those procedural aspects of the courses which broadened the options available to students. The next most frequently cited areas of effective incidents was that associated with instructional materials and learning activities. Students were most satisfied not only with proceeding through the course at their own rate, but with choosing and controlling the shorthand dictation materials which they used.

Teachers, on the other hand, most frequently cited that category of incidents as effective in which procedural aspects prescribed the instructional options. These activities were largely those in which groups of students took dictation from the teacher and read or transcribed their notes.

In contrasting the two classes, procedural aspects which prescribed the instructional options available to students were more prominent in Sheboygan than in Manitowoc. This was the case primarily because in Sheboygan the class met during a scheduled class period, thus making such group activities more easily organized. The class in Manitowoc, however, did not meet as a class except for testing sessions; rather, students worked in an open-laboratory.

In Sheboygan there were also a larger number of effective incidents associated with instructional materials and methods. This was considered to be the result of the teacher-prepared instructional units correlated with the shorthand textbook which were available to the students.

F. AVT-Typewriting

Student Achievement Analysis. Five classes were included in this study which were using audio-visual-tutorial materials for instruction in typewriting. These courses were in the following districts: two classes in VTAE District No. 5 (Beloit and Janesville); one in VTAE District No. 8 (Waukesha); one in VTAE District No. 11 (Sheboygan); and one in VTAE District No. 12 (Appleton). Four of these classes met in open-laboratory situations; one course combined an open-laboratory with two hours of scheduled classes per week for each typewriting class.

When these five classes were combined and compared with the other six subject areas, students were observed to have received more B's and C's than expected and fewer grades of "Incomplete". Within only the AVT-Typewriting course the distribution of grades also differed across each district. The proportion of students who completed all of the course requirements within the semester ranged from 27 percent in Janesville; 42 percent in Beloit; 49 percent in Waukesha; 51 percent in Appleton; up to 52 percent in Sheboygan. More "Incompletes" than expected, however, were observed in Appleton.

With respect to teacher categorizations of students regarding their achievement specifically in an individualized instructional situation, more neutral categories occurred in contrast to other subject areas. Fewer negative categories occurred than expected, however, in the AVT-typewriting classes as a whole when compared with other subjects. The large proportion of neutral categorizations was judged to be due to the extensive use of open-laboratory scheduling patterns. Many of the students who withdrew from the course or who had "Incompletes" had not been seen often enough by the teachers to permit them to make a judgment.

Within the five classes, more negative categorizations were made in Districts No. 5 and No. 8, in contrast to Districts No. 11 and No. 12 where there were more positive categorizations. These latter two classes differed from the first three in three basic aspects which may have accounted for these differences in teacher-categorizations. First, both Districts No. 11 and No. 12 had developed pretesting programs which permitted the placement of students at beginning points in the course most appropriate to their backgrounds. Secondly, these districts had been in operation longer and, thus, permitted greater teacher familiarity with the operational procedures of the AVT open-lab. Thirdly, both Districts No. 11 and No. 12 permitted teacher assignment to the typewriting laboratory for longer periods of time, thus allowing more instructional contact with students.

When the AVT-typewriting classes were compared with the text-typewriting classes, more positive categorizations of students were observed in the text-typewriting classes. Two features of the text-typewriting classes may have accounted for this difference. First, all of the text-typewriting classes were organized using materials and procedures established primarily by the teachers who were teaching the courses. Secondly, all of the text-typewriting classes incorporated a form of student pretesting and placement.

Critical Incident Analysis. When the quality of the critical incidents from both students and teacher were compared with those cited in other subject areas, more ineffective incidents were observed in the AVT-typewriting classes. The majority of the incidents reported by students and teachers in AVT-typewriting, however, were effective. More ineffective incidents were observed in Districts No. 5 and No. 8. In Districts No. 11 and No. 12, there were more effective incidents than expected randomly. The general quality of the critical incidents, therefore, could be seen to correspond with the pattern of teacher categorizations of students. Both the positive student categorizations and the effective critical incidents were more dominant in Districts No. 11 and No. 12.

Students were observed to place more effective incidents than expected in the category associated with procedural aspects which broadened their instructional options. Within this general category, those incidents cited most often were those related to the ability of a student to pace his instructional pattern and to exercise greater control over the materials and the equipment he was using. He could stop and start when he wished, avoid certain activities when he was being unsuccessful, and re-do some assignments as many times as he wished.

On the other hand, students placed more ineffective incidents than expected in the categories of instructional materials, student-teacher relationships, and equipment. Criticisms of materials were more prominent in the classes without pretesting of students and their placement at various course starting points. Another frequent criticism of materials resulted from students' dissatisfaction with not being able to read the typewriting instructional content or to locate reference information quickly when needed. All of the instructional content was available only on slides with an audio source of verbal explanations. These same materials, however, were frequently reported in effective incidents because of their clarity and general interest to the students.

Students' criticisms of student-teacher relationships were observed to occur primarily in those situations in which teachers were assigned a smaller number of hours in the open-laboratory. The teachers were, thus, not available as often as needed to provide assistance to students.

Ineffective incidents related to equipment were also observed to be drawn largely from the two classes in which a minimum of instructional slide-tape carrells were available. A marked reduction of ineffective incidents related to equipment were noted in the class having the largest number of carrells available per student. Critical incidents involving equipment were rarely cited as illustrations of effective events; rather, equipment became prominent when it was not available or not operating correctly.

The critical incidents reported by teachers were similar to those of students with respect to student-carrel relationship and equipment. Teachers were found to be more sensitive than students, however, to situations associated with ineffective evaluation instruments or testing procedures. For both students and teachers, however, dissatisfaction with the content of evaluation materials or testing procedures appeared to be predominately in these classes in which pretesting had not been a part of the course, or in which the teachers were available less frequently for individual conferences with students.

G. Text-Typewriting

Student Achievement Analysis. As was the case with AVT-typewriting, five classes of text-typewriting were included in this study. These classes were considered similar in that the teacher had used textbooks originally developed for group instruction in typewriting. These texts had been reorganized to permit self-paced instruction by the students. The five classes included in this study were in the following districts: VTAE District No. 4 (Madison); VTAE District No. 9 (Milwaukee); VTAE District No. 10 (Fond du Lac); VTAE District No. 11 (Manitowoc); and VTAE District No. 15 (Wausau).

When these five classes were compared with the other six subject areas, more B's and C's were observed than expected in comparison with other subjects. Fewer grades of "A" and "Incomplete" were also observed in relation to other subjects. As was the case with AVT-typewriting, the

assignment of grades varied across technical school districts. The proportions of students completing the requirements of each by the end of the fall semester ranged from 100 percent in District No. 15; 79 percent in Districts No. 4 and No. 10; 53 percent in District No. 11; down to 23 percent in District No. 9.

Most noticeable was the lack of "Incomplete" grades in three classes, Districts No. 4, No. 10, and No. 15. The reason for this was the administrative requirement that prevented students from continuing their course work into the next semester. Grades in these classes were assigned to students on the basis of the progress which they had made at the end of the term. In Districts No. 9 and No. 11, however, there were proportionately more "Incompletes" than expected randomly. In addition to the possibility in these districts for a student to receive an "Incomplete" grade was the option of entering the typewriting course at any time within the semester. Such continuous enrollment by itself created "Incompletes" at the end of what was normally the fall semester.

With respect to student achievement specifically in an individualized instructional situation, more students in the text-typewriting classes were placed in the positive category relative to other subject areas. Compared with the AVT-typewriting classes, there were fewer neutral categorizations of students. Again, this probably was a reflection of the difference between the open-laboratory situations and the scheduled text-typewriting classes with respect to the frequency of teacher-contact with students.

When comparing the text-typewriting classes across the five technical school districts, more positive categorizations than expected resulted in Districts No. 9 and No. 15. More negative categorizations were observed in District No. 11. This difference was considered of particular interest between Districts No. 11 and No. 15 because of a special group of students which was being handled differently in each school.

The course in District No. 15 was designed expressly for students in the printing curriculum; the instructional sequence was planned for their interests as printers. In District No. 11 the printing students were required to follow the regular typing program of the secretarial science students in beginning typewriting. They met with the other students in the open-laboratory. These students, however, expressed general concern about the appropriateness of their instruction and were disturbed with the prospect of not being able to complete the course in one semester, as many of them did not. The teacher's categorization of these students as probably doing less well in the open-laboratory than they may have been able to do in a structured class was largely responsible for the greater number of negative categories in this district. The higher degree of satisfaction of students in District No. 15 indicated the desirability of treating these students as a separate typewriting group.

Critical Incident Analysis. The majority of critical incidents reported by both students and teachers in text-typewriting classes was effective. Both students and teachers had significant proportions of effective incidents in the same two categories: procedural aspects which

prescribed students' instructional options, and student-teacher relationships. With respect to the first category, however, students also reported more ineffective incidents.

The effective incidents in this procedural category were mostly in District No. 15 and were related to the group drill activities which were held regularly. In other districts, as No. 4, the desirability of group drill activities changed from student to student as some considered it an interruption of their independent work. Markedly less group activities were cited in District No. 11, an open-laboratory situation.

The occurrence of student-teacher relationships in a large number of effective incidents was a significant contrast with the AVT-typewriting classes in which the opposite was the case. This may be a reflection of the greater regularity of student-teacher contact when the classes met at a scheduled time. This same effective aspect was achieved, however, in the AVT classes when continuous teacher assignment was possible in the open-lab.

Two other incident categories may be singled out as having been cited with different frequencies in the AVT- or text-typewriting classes. In AVT classes, significant prominence was apparent for those procedural aspects which broadened the options available to students, and, in particular, the option of attending the open-lab at times of a student's choosing. While the self-pacing feature was still effective in the text-typewriting classes, the scheduling of these classes reduced markedly the number of incidents in this procedural category as a whole. In the text-typewriting classes it could be concluded that the advantage of a choice in students' attendance times was traded for the advantages of regular student-teacher contact and the ability to organize group activities.

A second incident category significantly different in the frequency with which it was cited in the two types of classes was that associated with equipment. AVT-typewriting classes were more dependent than text-typewriting upon many different types of equipment. Further, the major use of open-laboratory scheduling patterns in the AVT classes created in some instances the difficulty of a student's obtaining a typewriter when desired. In the scheduled classes, this difficulty never arose.

IV. Comparisons of Instructional Models

Five models were developed to describe the degrees of individualized instruction used in each of the 23 classes included in this study. These models were compared with respect to the student achievement resulting in each one, and with respect to the critical incidents reported by students and teachers.

Model No. 1 — Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels. (Of the 23 classes included in this study,

13 were described by this model.)

Student Achievement Analysis. More course grades of "Incomplete" than expected randomly were observed in classes described by this model. Further, when students were categorized by their teachers with respect to their general achievement in an individualized instructional situation, more negative categories resulted. There were also fewer early course completions than expected in courses placed in this model.

These findings would indicate that the omission of pretesting, the distinctive feature of this model, might be responsible for the general lack of positive achievement results in contract to the classes in the other descriptive models.

Critical Incident Analysis. Both students and teachers reported more ineffective critical incidents than expected randomly. These incidents were in five of the eight main categories: procedural aspects which broadened the students' instructional options; instructional materials and methods; student-teacher relationships; student-student relationships; and equipment and other instructional media. More effective incidents than expected relative to the other models were in the one category of those procedural aspects which prescribed a student's instructional options.

As contrasted with other instructional models, Model No. 1 can be seen to have provided a minimum of instructional options to students. Self-pacing was the distinctive feature of these classes. This alone, however, did not provide the opportunities desired in satisfactorily meeting a wide variety of student needs.

Model No. 2 — Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels. (Of the 23 classes included in this study, six were described by this model.)

Student Achievement Analysis. More grades of "B" and fewer "Withdrawals" were noted in this model. Teachers also categorized more students in the positive group with respect to their achievement in an individualized instructional situation. Further, more early course completions were experienced in these classes. This occurrence may be considered to be the result of the greater use of "advanced standing" in these classes as a result of the pretesting feature of this model. "Advanced standing" was also found to be positively related to students' course grades. Students who received such placement, particularly in typewriting, were more likely to receive A's and B's, and less likely to receive course "Incompletes" or "Withdrawals." It may be concluded that the addition of the pretesting aspect did increase the instructional options to the advantage of many students.

Critical Incident Analysis. Both students and teachers reported more effective and fewer ineffective incidents relative to the other models.

These course aspects which were particularly effective were those procedures which broadened the instructional options available to students and those course aspects associated with student-teacher relationships. One of the procedures which broadened the students' options was, of course, that of pretesting and placement at different instructional levels within a course.

The prominence of effective student-teacher relationships was probably due to the fact that those classes which provided pretesting and placement at different instructional levels within a course.

The prominence of effective student-teacher relationships was probably due to the fact that those classes which provided pretesting were also those classes having at least three other desirable features. First, three of the four text-typewriting classes which included pretesting also met at a regular time, which permitted regular student-teacher contact. Secondly, those AVT-typewriting classes which included pretesting in the fall semester were also those classes in which teachers were assigned to the open-laboratory for the longest periods of time. Third, the business mathematics which provided a pretesting program was also using materials which many students found easy to use independently. The teacher was, therefore, available to assist primarily those students who had difficulty with the text content.

It may be concluded that the combination of pretesting procedures, the placement of students at appropriate levels within instructional materials, student self-pacing of their progress, and the availability of the teacher when needed all contributed to the effectiveness of the Model No. 2 classes.

Model No. 3 — Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at various levels. Integrated remedial adjuncts to a fixed "main track" instructional sequence. (One of the 23 classes in this study was described by this model.)

Student Achievement Analysis. Students in the text-typewriting class described by this model received fewer A's and more "Incomplete" grades. There were also found to be more negative categorizations of students by the teacher in contrast to other models. Those features of this course primarily responsible for these achievement statuses were discussed previously in association with the text-typewriting class in District No. 11.

Critical Incident Analysis. In a manner coinciding with the achievement of students in this particular class, the critical incidents reported by students and teachers were more likely to be ineffective than effective. There were, however, more effective incidents numerically. The proportion of ineffective incidents was higher than expected when compared with other instructional models.

One particular category in which the frequency of ineffective incidents was significantly large was that of instructional materials. Since the distinctive feature of this model was the provision of special remedial materials as adjuncts to the main instructional sequence, this observation would appear to show these materials as a weakness. That these particular materials were not a weakness became clear when the source of the materials criticisms was examined. Those materials which were to be used as remedials adjuncts were in the Typewriting III sequence, not the Typewriting I and II materials used by most students. Further, the ineffective incidents associated with instructional materials were largely from two areas. First, the printing students expressed dissatisfaction with the secretarial science nature of the typewriting assignments they were to complete. Second, the teacher expressed concern that those students who were "pure beginners" in typewriting were not receiving sufficient assistance from the materials available when they needed special help.

With respect to this course as an example of Model No. 3, it must be concluded that the remedial instructional materials did not assume prominence. This class more nearly corresponded to the descriptive Model No. 2 in that pretesting was an important aspect of the course.

Model No. 4 — Objective to develop students to designated criteria with provisions for student selection of course-unit progression. Duration of progression flexible. (Two classes of the 23 included in this study were described by this model.)

Student Achievement Analysis. Student course completion in this model differed from the other four models in that more A's and fewer "Withdrawals" occurred than expected. There were also more positive categorizations of students with respect to their achievement in an individualized instructional situation. The reasons for the generally high degree of satisfaction in these courses may be seen from the critical incident analysis.

Critical Incident Analysis. In both classes there were more effective incidents than expected relative to other instructional models. As expected from the description of this model, the largest proportion of these effective incidents was related to instructional materials. The key feature in these courses was the choice given to students in selecting either the instructional units which they could study or in selecting learning activities coinciding with their interests.

A second effective aspect in these courses was that related to testing materials and procedures. In one of these classes, the tests were not only directly associated with the objectives stated for each unit, but students were given some choice in the form of the test which they could take, either oral or written. In the second class the testing included both comprehensive objective-type tests and process evaluations of the actual construction of merchandise displays.

Because of the dominance in these courses of the instructional and evaluation materials, the procedural aspects appeared to be less prominent. While the students and teachers reported effective critical incidents related to the self-pacing features of these courses, the frequency of incidents in these procedural categories was less than expected in relation to the other instructional models.

Model No. 5 — Objective to develop students to individually selected criteria for each student and the use of different instructional sequences for each. Pretesting and placement were incorporated into the construction of the instructional sequences. (One course of the 23 included in this study was described by this model.)

Student Achievement Analysis. Student achievement in this typewriting course was primarily a reflection of the unique instructional situation of a large urban school. Fewer A's and B's were earned by students and more "Incompletes" and "Withdrawals". Students enrolled in this course were those in a one-year program, and they were permitted to enroll in the course at any time during the semester. The persons being served by this very flexible situation were those for whom school had not previously been a continuous process.

That this course was satisfactorily meeting the quite varied needs of the students was indicated by the positive categorization of the students by the teacher. The majority of these students were judged to be doing better than a structured class might have permitted.

Critical Incident Analysis. The majority of the critical incidents reported by the teacher and students were effective. These incidents were primarily in two categories: those procedural aspects which broadened the options available to students; and those associated with student-teacher relations.

The most distinctive feature of this course was the provision of a different instructional sequence for each student. This special instructional attention plus the option of proceeding at a student-set pace were the most effective course aspects.

Together with the development of an individualized instructional sequence for each student was the key role played by the teacher in this course. As the instructional sequences were developed weekly, and during each daily class meeting, there was continuous student-teacher contact. In summary, the significant features of this fifth model were those of pretesting, student self-pacing, the individualized instructional sequence development for each student weekly, and the key assistance to students as it was needed.

V. Comparisons of Scheduling Patterns

Four scheduling patterns were developed to describe the meeting

arrangements of the 23 classes included in this study. The classes placed in each of the four patterns were compared with respect to the student achievement and with respect to the critical incidents reported in each one.

Schedule No. 1 — All classes scheduled to meet at designated times. (Ten of the 23 classes included in this study were described by this pattern.)

Student Achievement Analysis. When contrasted with the other three scheduling patterns. More A's and fewer B's and C's were observed in classes meeting with this scheduling pattern. While the majority of the students in these classes were placed in a positive category by their teachers with respect to their achievement in an individualized instructional situation, the proportion of the students in this category did not differ from that expected randomly. What may be particularly noted in this scheduling pattern was that meeting as a scheduled class did not itself reduce nor increase the number of course "Incompletes" or "Withdrawals."

Critical Incident Analysis. There were three incident categories in which the proportion of effective incidents was larger than expected when compared with the other three scheduling patterns. These were the categories associated with instructional materials and methods, testing procedures, and student-teacher relationships. Since the courses included in this scheduling pattern included several subject areas, the reasons for the effectiveness of the instructional materials varied for each one. It is noteworthy, however, that the instructional content of the courses assumed a larger prominence as an effective course aspect than did the procedural aspects.

The presence of the teachers at every class meeting was considered to be primarily responsible for the generally favorable reporting of student-teacher relationships. While the number of students in a class and the clarity and completeness of the instructional materials affected the availability of the teacher for extra assistance, the existence of a scheduled class was a major factor affecting potential teacher availability .

The third category in which a large proportion of effective incidents was reported was also one in which there was a large proportion of ineffective incidents. The procedure of taking tests at times chosen by the student was a procedure considered to be effective--but up to a point. When the existence of a class period of a given length affected a student's ability to complete the test, this became at times an ineffective aspect. Further, when oral tests were to be given during a class period, only one could generally be given at a time, thus causing other students to wait. It was at this point in one course that the option of giving oral or written tests became a particularly desirable feature.

Schedule No. 2 — Some classes scheduled at designated times; other

classes released for independent student work. (Three of the 23 classes included in this study were described by this scheduling pattern.)

Student Achievement Analysis. When compared with other scheduling patterns, fewer grades of "C" and more course "Incompletes" were observed in these three courses. In addition, there were fewer positive and more negative categorizations of students with respect to their achievement in an individualized instructional situation. There were also observed to be fewer early completions in these classes when compared with the other scheduling patterns.

While it should not be judged that the scheduling arrangement alone was responsible for the larger number of "Incompletes" and negative student categorizations, it was noticeable from the critical incidents reported that the procedural aspects of these courses did assume a prominent role.

Critical Incident Analysis. The majority of the critical incidents reported in this scheduling pattern were effective, but the proportion of effective incidents was smaller than expected when compared with the three scheduling arrangements. One incident category in which the proportion of effective incidents was larger than expected was also a category in which the proportion of ineffective incidents was larger than expected. This category was those procedural aspects of a course which prescribed the instructional options available to students. Several different course procedures in the three classes were responsible for this ambiguous outcome.

In the marketing course, for example, the assignment-checking procedures caused problems for the students and the teacher, while the group activities in this class during the class meetings were the source of many effective incident reports. In beginning shorthand and typewriting, likewise, the group activities during the scheduled class period were cited as effective incidents.

Two other categories of ineffective critical incidents indicated a possible source of difficulty associated with this particular scheduling arrangement. More ineffective incidents than expected were reported in association with procedural aspects which broadened the instructional options to students, particularly the self-pacing feature of these courses. Secondly, more ineffective incidents than expected were observed in association with student-teacher relationships. During those times which the classes were "released", students experienced difficulty in obtaining the assistance they needed from their instructors. Only in the beginning shorthand classes was the teacher available on a regular basis in an open-laboratory during the students' "released" hours. In this particular course, there were fewer ineffective incidents associated with student-teacher relationships.

It may be concluded, then, that "released" hours for students were less effective when they were associated with minimal assistance from or availability of the teacher as needed.

Schedule No. 3 — All classes scheduled to meet at designated times; laboratory facilities available for extra work in addition to the scheduled classes.
(Four of the 23 classes included in this study were described by this scheduling pattern.)

Student Achievement Analysis. Contrasted with the other three scheduling patterns, there were more B's and C's awarded in these classes and fewer "Incompletes" was less than expected. Further, there were more positive categorizations of students by teachers with respect to their achievement in an individualized instructional situation. Those course aspects which lead to this favorable course achievement may be best summarized as reported in the critical incidents.

Critical Incident Analysis. More effective incidents were reported in this scheduling pattern in relation to the other three. The strengths of these courses were shown by the critical incident categories in which more effective incidents than expected were reported by both students and teachers. These included those procedural aspects of a course which broadened and also prescribed instructional options, instructional materials and methods, and the content of the evaluation instruments. As was true of Schedule No. 1 in which scheduled classes were held, a large proportion of effective incidents were reported involving student-teacher relationships. Both Schedule No. 1 and No. 3 had higher proportions of effective incidents in this category than did Schedule No. 2.

Also in contrast to Schedule No. 1 and 2, the procedural aspects in Schedule No. 3 were prominent as contributing to effective incidents. Students not only had the option of meeting in group activities, but they also had the opportunity of extending their independent work beyond their scheduled class hours because of the availability of laboratory facilities.

Both these procedural aspects and the continuous availability of the instructor were judged to have contributed to the effectiveness of the instructional and the evaluation materials. It may be concluded that Schedule No. 3 offered the positive potential of combining some of the strengths of both scheduled class meetings and open-laboratory facilities.

Schedule No. 4 — No classes scheduled; all work completed in an open laboratory at time chosen by student.
(Six of the 23 classes included in this study were described by this scheduling pattern.)

Student Achievement Analysis. While there were fewer A's and more C's awarded in classes using an open-laboratory, there was no difference in the number of course "Incompletes" or "Withdrawals" when compared with the other scheduling patterns. Further, teachers judgment of the students' success in an individualized instructional situation resulted in more positive categorizations of students than expected.

There were, however, also more neutral categorizations of students

than expected. This was judged to have been the result of the infrequency of some student-teacher contacts. Several of those students who withdrew from an open-laboratory class or who were "Incomplete" had not been seen frequently enough by their instructor to permit a judgment regarding their level of achievement. This conclusion was further supported by the larger number of neutral categorizations resulting in all classes for students with the "Withdrawal" status.

One other achievement category indicated the generally favorable reaction to the open-laboratory scheduling pattern. In contract to the other scheduling arrangement, there were more early course completions in the open-lab classes. This was probably due not only to the availability of the open-lab facilities, but also to the pretesting and "advanced placement" programs which were a part of several of the classes included in this scheduling category.

Critical Incident Analysis. The category including the largest proportion of effective incidents was that related to the procedural aspects of these courses which broadened students' instructional options, such as the self-pacing features of the courses and the choice of attendance times in the open-laboratory. While some students and teacher expressed the concern that the open-lab required considerable self-discipline and maturity to be used effectively, this concern was not evident in an increased number of ineffective incidents in the procedural category. The open-laboratory, when staffed adequately, provided maximum flexibility to the students in controling the pace of their progress through a given course.

The importance of teacher staffing of the open-laboratory was evident through those incident categories in which there were larger proportions of ineffective incidents. One of these was that associated with student-teacher relationships. As previous analysis of the AVT-typewriting classes has shown, these ineffective incidents resulted primarily in those situations in which teachers were able to spend the least amount of time in the open-lab.

Closely associated with teacher availability were those ineffective incidents in the category associated with the operational aspects of testing. Again, ineffective incidents were most often reported in those situations where teachers were not able to administer and score tests immediately with a student.

As contrasted with the other scheduling patterns, an area of ineffective critical incidents was unique to the open-laboratory situations: equipment and instructional media. Since the open-laboratory typewriting classes were particularly dependent upon several types of instructional media and equipment, the inability of students to use these easily or their inability to have easy access to the machines was quickly singled out when it became a problem. This difficulty was most apparent in those schools in which the smallest number of slide-tape carrells were available per student, and were conspicuously absent in the classes in which a maximum number of carrells was available.

A final aspect was apparent in the open-laboratory classes through the small number of both effective and ineffective critical incidents reported. In the open-laboratory classes there were a minimum of procedural elements which prescribed the options available to students. There were fewer times that students could meet as small groups, for example. While the lack of such activities was not itself the object of numerous critical incidents, the absence of such group activities was, nevertheless, apparent.

VI. Personal Observations and Conslusions

The previous findings and conclusions have been based directly on the data yielded in this study and the various analyses which were performed. These data provide contrasts among the several forms of individualized instruction across five subject areas and within ten Vocational, Technical and Adult Education districts. These data also support the major findings of this study with respect to the variability in student achievement under different conditions and the strengths and weaknesses in the instructional situations which lead to such achievement. They do not, however, by themselves portray some of the striking features of these 23 classes which were not directly subject to quantitative analysis.

Other course aspects were apparent to the investigator which were considered sufficient basis for further conclusions. These succeeding conclusions have been designated as personal observations which may be further drawn from the data obtained through observing 23 classes, and from the interviews with students and teachers. At least three visits were made to each of these 23 classes, or approximately seventy visits of a minimum of one day each. On several occasions a visit was extended to two or three days to permit a more continuous observation of several classes.

During some of these visits, interviews were conducted with 224 students for the purpose of collecting critical incident data. Interviews of a more informal nature were held with the 28 teachers of these classes. It can be estimated that a minimum of 160 hours were spent directly with students or teachers with the objective of collecting critical incidents. It is these interviews and observations which form the basis for the following conclusions. These conclusions have been grouped into the five areas of procedural course aspects, course materials and methods, testing materials and procedures, the role of the teacher, and equipment.

A. Procedural Course Aspects

A variety of classroom procedures were being used with high levels of satisfaction as indicated by the reporting of critical incidents, given that the procedures were clearly understood by the students. Those factors which may be singled out as being particularly desirable were the following:

(1) The ability of a student to pace his own instruction.

(2) The ability of a student to choose the time of his attendance in a class.
(3) The ability of a student to control the equipment or the materials he was using, such as the length of time which he spent on an activity or the number of times which he repeated it.
(4) The ability of a student to begin a course at a point in the instructional sequence other than the beginning.
(5) The ability of a student to enter a given course at a time other than the beginning of the semester.

In short, while students were more likely than teachers to mention some of these procedural aspects as effective, the procedures which broadened the options of students were particularly desirable.

(6) Of those procedural aspects which limited the options of a student for a given period of time, those considered most often as effective were the small group meetings. This was true particularly in the areas of accounting, marketing, and shorthand. To a lesser extent, it was also true in typewriting.

B. Course Materials and Methods

Several observations may be made with respect to the materials which were being used in the 23 classes included in this evaluation:

(1) Only in rare instances, one in this study, were materials designed primarily for group instruction used successfully in the individualized class without some modification or supplement by the teacher. When materials designed for group instruction were transferred without alteration to a self-paced class, the burden upon the teacher in the form of personal supplementary assistance to students was not seen to be satisfactory. In two classes this "unaltered" form of the materials was judged to be a primary reason for the discontinuance of these classes on an individualized basis.

(2) When classes are first changed to an individualized approach from group instruction, the major curriculum development consumes considerable amounts of teacher time. Teachers are being asked or are themselves undertaking curriculum development roles which have not previously been their responsibility on such a large scale. In some cases, they are fulfilling the dual capacity of curriculum specialists and textbook authors.

Teachers were observed to assume this large curriculum development tasks under two different conditions:

(a) When the teacher himself had decided that this was the only means of obtaining certain kinds of materials and used his own free time for this purpose, and

(b) When teachers were permitted realeased time and were reimbursed by their schools for this work.

(3) In only one of the 23 classes did students have more than one route which they could follow in acquiring a given body of content or in obtaining a given skill. While in some instructional areas only one type of learning activity might be judged most worthwhile, in many other situations the potential of individualized instruction has yet to be realized. A major change has been made in permitting student-pacing through certain subject areas. The ideal, however, of permitting students several options regarding the form of media or instructional approach they may take in acquiring a given competency has not yet been implemented.

(4) Most attention appears to have been given so far in the Wisconsin technical schools to the acquisition of commercial systems in which complete instructional sequences have been developed ready for use. It is surely desirable that these available systems be utilized when they meet the requirements of a given instructional situation. They offer the marked advantage of saving considerable material preparation time for the teachers.

Because of less encouragement, however, and the lack of sufficient teacher-preparation time, less attention has correspondingly been given to those areas lacking commercially available materials. The areas in which the most materials developed commercially for individualized instruction are being used are those of beginning and intermediate typewriting and beginning shorthand.

(5) The finding that students with previous course experience have generally done better in individualized courses in the same subject than students without such experience may be due to two causes:

(a) Because of the lack of pretesting in several courses, students with previous course experience may have been receiving higher grades in those topics which they were reviewing; or

(b) Students without previous course experience in a subject may take longer to obtain a basic sense of course orientation and direction in an individualized situation than do students who are already familiar with the subject.

C. Testing Materials and Procedures

Two observations or conclusions may be drawn additionally with respect to testing materials and procedures:

(1) Pretesting has been found to be extremely worthwhile in that students were more satisfied with the course materials they were

using when they were placed according to their previous backgrounds. They were also able to complete course requirements sooner. However, pretesting programs have been in use in relatively few courses. This may be an indication of two basic difficulties or deficiencies:

(a) A lack of satisfactory pretesting instruments with which to identify specific course accomplishments or important student background characteristics or aptitudes; and

(b) A lack of alternate instructional sequences which a student might follow, given certain identifiable competencies.

(2) In addition to the pretesting deficiencies, the evaluation areas of the individualized courses appeared to be weak in two other respects:

(a) Except in the skill courses of typewriting and shorthand, and in the accounting problem areas of evaluation, written, objective-type tests have been the major form of testing. While different types of testing procedures have been used in a few classes and found to be effective (such as the oral examination), few courses have been seen to incorporate a variety of testing forms.

(b) When objective-type tests have been used, and also when skill performance tests have been administered, alternate forms of the same test have not often been available. In some testing areas where speed is a primary object of measurement, the existence of parallel tests might not be as critical. However, the integrity of the testing program has been questioned by several students and teacher when the secrecy of the tests has been uncertain.

D. Role of the Teacher

The role of the teacher cannot be underestimated in individualized instructional situations. Three comments seem warranted in this respect:

(1) The development of materials or the organization of materials for student use is primarily the teacher's function. The teacher is the critical person both for the initial planning of materials and for the monitoring of their use. Students' needs cannot be fully anticipated, however, when materials are prepared; and it is the teacher's continued presence and sensitivity to these needs that permits the realization of student options and opportunities within an individualized course.

(2) A teacher's role may at times be best fulfilled by his absence as by his presence. Students' comments indicated that the teacher's availability for one-to-one assistance when it was

needed was of key importance. But they also indicated the satisfaction of working independently with only the knowledge that aid was available if needed.

(3) The enthusiasm of teachers for a new individualized instructional situation appeared to be directly affected by the extent of the role which the teacher played in the development of the materials or in the acquisition of a commercial system. As had been found to be true for students, teachers were also more satisfied with those situations over which they had exercised the greatest control in implementation and continued development.

E. Equipment

Equipment problems were many times beyond the control of the teachers or the staff using them. But equipment and media difficulties arose most frequently under three adverse circumstances:

(1) Failure to purchase equipment best suited to the use for which it was intended with respect to sizes of equipment and its quality;

(2) Insufficient numbers of certain pieces of equipment in relation to the students enrolled in a course; and

(3) Lack of technical assistance in maintaining equipment, such as that which could be provided by a laboratory assistant.

In summarizing the general process of the development of individualized instructional courses within the Wisconsin post-secondary institutes, two characteristics seem prominent.

First is the trend or the stages through which individualized courses might be said to pass as this instructional method is used for longer periods of time. At the beginning, the most prominent ingredient has been that of student-pacing within a course. Those courses which have been offered on this basis for longer periods of time, however, appeared to next add the feature of an organized pretesting program within the course. Following this, more options tended to be made available to students as the elements of self-pacing and pretesting became more familiar and routine. For instance, one class in this study made remedial adjuncts an organized part of the materials. One other class permitted each student to follow a different instructional sequence. The provision of additional alternatives or student options appeared to be limited by the facilities available and the time of the teacher to prepare additional materials.

A second feature that was apparent has already been alluded to. That is the tendency for wider acceptance or attention to instructional systems supported by more visible types of instructional media. While it is encouraging to see more forms of instructional materials made available to students, such as slide-tape media, video-tape, or cartridge films, it

should not be overlooked that the more traditional forms of instruction such as reading or group presentations also remain potential alternatives from which students should be able to choose.

RECOMMENDATIONS

The following recommendations have been drawn from the findings and conclusions of this study of 23 classes in the Business Divisions of Wisconsin Vocational, Technical and Adult Education institutes. While these recommendations are largely concerned with the approaches to individualized instruction in general in these post-secondary technical institutes, some specific subject-matter suggestions have been included. In a manner coinciding with the outline of the conclusions of this study, these recommendations have been grouped in the areas of procedural aspects, materials and general student achievement, evaluation materials and procedures, the role of the teacher, and instructional equipment and media.

A. Procedural Aspects

Specific procedural aspects must be chosen within particular schools and instructional situations, and in no two instances are these procedures likely to be exactly the same. The following recommendations concern broad provisions only which may be adapted to the needs of a particular school:

(1) The element of student-pacing within a course should be encouraged--given the adequate development of instructional materials to permit such independent work and the organizational procedures to facilitate its operation. Such student-pacing may be considered a first major step in the direction of the development of individualized instruction.

(2) When the open-laboratory is used as the primary source of instruction for students, it seems most desirable to staff it for as many continuous hours as possible with at least one qualified instructor. This number of staff should increase whenever the assignment-checking procedures or the number of students appears to warrant more instructional supervision.

(3) The holding of scheduled class meetings together with the provision of open-laboratory facilities is recommended as offering three possible advantages: opportunity for group activities, continuous or regular teacher-student contacts, and the student option of continuing work beyond scheduled class hours.

(4) Individualized instruction does not necessarily imply completely independent student work. In the courses of marketing, accounting, beginning shorthand, and in some instances,

typewriting, group activities are most appropriate for certain learning objectives. When classes have been organized for maximum student flexibility in the pacing of their instruction or when class attendance is optional, consideration should also be given to ways of providing group meetings when desired. It cannot be assumed that such group organizations will occur spontaneously.

(5) In any individualized instructional situation where student progress is dependent upon teacher approval or specific instruction as to the next learning activities, a premium must be placed on the immediate checking of students' work. Consideration should be given to providing a balance of student-checking of their own work through self-checking devices, immediate teacher-checking of some types of work, and the collection of other work by the teacher for checking and return to students.

B. Instructional Materials and Student Achievement

The materials available for student use were found to be a critical element in an individualized situation. These materials limited both the options available to students and the time of teachers to the extent that such materials needed to be supplemented by oral directions. Several recommendations seem appropriate with respect to the general topic of instructional materials.

(1) The provision of student-pacing through a body of instructional content was itself found to be a particularly desirable feature in the individualized courses. Continued attention should be given, however, to the type of materials which permit such a choice by students. Those materials which best permit independent student work and self-pacing are not necessarily the same textbooks or resources used for group instruction. Specially developed materials should be designed for this purpose.

(2) Student-pacing alone, however, does not permit a realization of the objective of allowing students to learn by genuinely different instructional routes. Attention should, therefore, be directed toward developing more than one means within a class by which students may reach similar instructional objectives. Such alternatives might permit some students to read given course materials while other students could obtain the same information through another audio-visual source. More than one alternative instructional sequence existed in only one of the 23 classes included in this study.

(3) No one set of instructional materials may be recommended for particular subject areas since comparative studies have not been available to show one set of materials superior to another in attaining given objectives. It would, therefore, be better to encourage the simultaneous use in one or several technical institutes of different forms of instructional materials in the same

subject areas. Such diversification would provide a better means of judging the strengths of different materials than would a premature adoption of one single set. Both commercially-prepared materials and teacher-prepared materials may supplement each other. The use of one should not preclude the use of the other.

(4) The initial development of materials for an individualized instructional situation in any subject area requires a considerable amount of teacher time, whether the materials are commercially prepared or whether they are developed primarily by the teachers from more traditional, group-oriented materials. The latter task is, of course, more time-consuming than the former. This time requirement should be recognized and teachers' schedules adjusted correspondingly when such material development is initially undertaken.

(5) Means should be further investigated for the sharing of materials among technical school districts beyond the informal conveying of ideas which has been possible up to now.

(6) The finding that students with previous course experience in a subject area are relatively more successful than students just beginning a course suggests the need for further study. Attention should be directed toward the differences in instructional needs of students with previous course experience from the needs of those who are pure beginners in a subject. In the areas of shorthand and typewriting, in particular, it may be desirable, where facilities permit this option, to incorporate more group activities for persons without previous course experience.

(7) The difference in achievement of students in the two-year Associate Degree programs compared with that of the students in the one-year Vocational Diploma programs suggests the need for further investigations. Current materials and practices have not apparently compensated for the differences in these groups of students to enable them to achieve at comparable levels. It may be desirable to continue to differentiate between these two groups of students with respect to the types of instructional materials available and the procedures which are used in the course.

(8) The large proportion of "Incomplete" grades in several of the classes should be the object of further investigation. By itself, the occurrence of an "Incomplete" is neither a good nor a bad indication of the success of aourse. The objective of a student-paced course is to permit students the time necessary to meet the instructional objectives. On the other hand, the teacher categorizations of a large proportion of students with "Incompletes" as "negative" with respect to their success in an individualized situation did suggest that the extension of course completion time was not always considered to be an advantage. The extent to which students with "Incomplete" grades at

the end of the fall, 1971, semester eventually did fulfill the course requirements should be known. An extension of this study would, therefore, be desirable to secure this information.

C. Evaluation Materials and Procedures

In an individualized instructional situation, formal evaluation procedures are the primary means of assessing a student's progress toward the intended course objectives. Important instructional decisions are made through the use of several testing sessions, such as the option of waiving selected course topics or the satisfactory completion of given course requirements. Such decisions are directly affected by the quality of the testing materials and procedures. From the observations made in this investigation with respect to such evaluation, some broad recommendations seem warranted:

(1) Greater teacher participation should be encouraged in the development of pre-testing and diagnostic tests for use both at the commencement of a course and at recurring points within an instructional sequence. The most dominant feature in the classes included in this study was that of student-pacing, with pre-testing being present in less than half of the 23 classes. However, as more attention is given to the provision of a larger number of instructional alternatives, an increase will also be necessary in the evaluation instruments which may be used as decision aids. Such instruments will be necessary not only for assisting in the decision of a course starting point, but also in choosing a desirable instructional sequence.

(2) The effective utilization of tests other than written, objective-type tests was demonstrated in several classes in this study. In a manner which coincides with the instructional objectives sought, and within the guideline that examinations should be easily scored by teachers and their results quickly communicated to students, more attention should be given to different forms of testing.

(3) When objective-type tests continue to be the most efficient form of evaluation, alternative forms of the same test should be constructed. This is particularly necessary when students are permitted the option of retaking examinations.

D. Role of the Teacher

As in any classroom, the teacher plays a dominant role in affecting students' attitudes and in organizing the instructional options available. A teacher's preference and ability to work with students on a one-to-one basis rather than solely as the director of group activities will affect the teacher's enthusiasm for the individualized instructional situation. Further, his thorough understanding of the individualized instructional procedures and his support of these techniques as effective teaching procedures will likewise affect a program's success. Based on these assumptions, three recommendations may be drawn from the observations made in this study:

(1) The teacher who is to use a particular set of instructional materials in an individualized instructional situation should play a major role either in the development of these materials or in the acquisition of a commercial system. Not only is his professional judgment necessary in such decisions, but the teacher's support of such a system is also likely to be affected by the extent of his participation in major instructional changes.

(2) Teacher-education institutions should continue to increase their professional course offerings to teachers dealing with the philosophical and psychological bases for individualized instructional programs. Those techniques and understandings necessary for the organization of courses in which several instructional alternatives may be available to students should also be a part of teacher-preparation curricula. The importance of such preparation is particularly acute at the post-secondary level because of the diverse backgrounds of the students who enroll in these programs.

(3) Further study and experimentation is necessary to determine the necessary qualifications of the staff assisting in open-laboratory instructional situations. The roles of the para-professional staff who may complement the functions of the fully certified instructors have not been uniformly defined. These roles may vary with the level of instruction or the subject matter taught in an open laboratory.

E. Equipment and Instructional Media

The findings of this study do not permit an evaluation of the degree to which additional instructional equipment increases or decreases the cost of the instructional staff necessary for its use. The findings of this study do, however, support at least one recommendation:

(1) Since equipment or other media were more often cited as ineffective than as effective course aspects, it was apparent that improperly functioning equipment was a significant impedent to learning. Properly functioning equipment, on the other hand, permitted attention to be directed to the objective of the equipment's use and not to the equipment itself.

Any equipment acquired should, therefore, be in sufficient quantity and quality to serve the purpose for which it was intended. Specific quantities and qualities must be decided in the individual situations of concern. Doubtful economies and greater student and teacher inconvenience are more likely if equipment acquisitions give lesser priority to the instructional applications than to the source of supply or to the cost.

Implementation of Recommendations

Mention has been made of the desirability of sharing both materials and ideas among instructional staffs within the Wisconsin Vocational, Technical and Adult Education system. As a means of implementing such a sharing of common concerns, a further recommendation may be made:

Inter-school workshops should be held in selected geographical locations for the participation specifically of instructors and administrative staffs in the Business Divisions of the Wisconsin Vocational, Technical and Adult Education institutes. Such workshops should be planned jointly with these technical institutes, the staff of the Wisconsin Board of Vocational, Technical and Adult Education, and the faculties of teacher-education institutions who may be of assistance. The purpose of these workshops should be to permit discussion of appropriate research findings and to encourage the implementation of those aspects of individualized instructional situations which this report has thus far shown to be effective.

BIBLIOGRAPHY

Amelon, Donald J. "Slide-Tape Self-Instruction Versus Traditional Group Demonstrations in College Level Metalwork," Ed.D. Dissertation, University of Missouri, 1969. VT 009 184

American Institutes for Research. "The Development and Evaluation of an Experimental Curriculum for the New Quincy (Mass.) Vocational-Technical School." Pittsburgh, Pennsylvania, 1967. VT 008 451, ED 028 306

Armstrong, William H. "An Experimental Investigation of the Instructional Effectiveness of Published Programmed Instruction Materials vs. Individualized Instruction in Area Vocational-Technical Schools," Ph.D. Dissertation, Florida State University, 1967. VT 011 005

Blair, John R. "Classroom Effectiveness of Teachers as Perceived by High School Students," Ph.D. Dissertation, University of Mississippi, Columbia, 1962.

Calder, Clarence R. "Modern Media for Vocational-Technical Education," Hartford, Connecticut: Connecticut State Department of Education, Division of Vocational Education, 1967. VT 008 607, ED 030 726

Campbell, V. N. "Bypassing as a Way of Adapting Self-Instruction Programs to Individual Differences," Journal of Educational Psychology, 54:337-345, 1963.

Coffey, John L., et al. "Evaluating the Effectiveness of Instructional Methods for Selected Areas of Vocational Education," Final Report. Ohio: Columbus Laboratories, Battelle Memorial Institute, 1968. ED 019 511

Cooley, William W., and Glaser, Robert. "An Information and Management System for Individually Prescribed Instruction," in Computer-Assisted Instruction by R. C. Atkinson and H. A. Wilson (Eds.), New York: Academic Press, 1969.

Cronbach, L. J. "How Can Instruction be Adapted to Individual Differences," in Learning and Individual Differences by R. M. Gagne (Ed.), Columbus, Ohio: Merrill Books, 1967.

Cronbach, L. J., and Snow, R. E. "Individual Differences in Learning Ability as a Function of Instructional Variables," Final Report. Stanford, California: Stanford University, 1969.

Farrar, Eugene A. "Critical Requirements of In-Service Education for Junior College Business Instructors as Determined by Critical Incident Analysis," Ph.D. Dissertation, University of Southern California, Los Angeles, 1962.

Fedel, Joan. "Self-Examination in Typewriting in a Multiple Class Situation Providing Individualized Instruction," Denver: Colorado State Department of Education, 1964. VT 005 590

Field Test Report. "Programmed Lessons," Elmore, Alabama: Rehabilitation Research Foundation. VT 001 643

Flanagan, John C. "The Critical Incident Technique," Psychological Bulletin, 51:327-358, July, 1954.

Glaser, Robert. "Evaluation of Instruction and Changing Educational Models," in Evaluation of Instruction by M. C. Wittrock and D. Wiley (Eds.). New York: Holt, Rinehart, and Winston, 1969.

Kessel, Robert M. "The Critical Requirements for Secondary School Business Teachers Based Upon an Analysis of Critical Incidents," Ph.D. Dissertation, The University of Wisconsin, Madison, 1957.

Kress, G. C., Jr., and Gropper, G. L. "A Comparison of Two Strategies for Individualizing Fixed-Paced Programed Instruction," American Educational Research Journal, 3:273-380, 1966.

Krupka, John G. "The Effectiveness of the Use of a Programmed Textbook Approach in Shorthand I," A Pilot Study. Bethlehem, Pennsylvania: Northampton County Area Community College, 1970.

Lanham, Frank W., et al. "Development of Performance Goals for a New Office and Business Education Learnings System" Final Report. Columbus: Ohio State University, Center for Vocational-Technical Education, 1970. VT 011 347, ED 041 139

Lindvall, C. M., and Bolvin, John O. "Programmed Instruction in the Schools: An Application of Programing Principles in Individually Prescribed Instruction," in Programed Instruction by P. Lange (Ed.) 66th Yearbook of the National Society for the Study of Education, Part II, 1967, pp. 217-254.

Nelson, Hilding E. "National Institutes on Innovative Curriculums in Vocational-Technical Education," Final Report. University Park: Pennsylvania State University, Department of Vocational Education, 1969. VT 009 584, ED 033 242

Ripple, R. E., Millman, J., and Gloek, M. D. "Learner Characteristics and Instructional Mode: A Search for Disordinal Interactions," Journal of Educational Psychology, 60:113-120, 1969.

Samson, Harland E. "Critical Requirements for Distributive Education Teacher-Coordinators," Ph.D. Dissertation, The University of Minnesota, Minneapolis, 1964.

Tallmadge, G. K. "Relationships Between Training Methods and Learner Characteristics," Journal of Educational Psychology, 59:32-36, 1968.

Tallmadge, G. K., et al. "Study of Training Equipment and Individual Differences: The Effects of Subject Matter Variables," Palo Alta, California: American Institute for Research in the Behavioral Sciences, 1968. VT 008 814

Van Derveer, Elizabeth T. "Pilot Program Studying Use of Electronic Equipment in the Stenography Classroom," Trenton, New Jersey: Division of Vocational Education, State Department of Education, 1968. VT 008 024, ED 028 281

Weber County School District, Utah. "A Business Education Individualized Continuous Progress Research Curriculum Study Guide, Volumes I and II," Salt Lake City: Utah State Board of Education, 1970.

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APPENDICES TO

FINAL REPORT

Project No. 19-008-151-222

AN EVALUATION THROUGH FIELD TESTING OF INDIVIDUALIZED INSTRUCTION MATERIALS IN WISCONSIN POST-SECONDARY INSTITUTES

August, 1972

THE UNIVERSITY OF WISCONSIN
MADISON

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
Madison, Wisconsin

VT017693

A P P E N D I C E S

APPENDIX A

COURSE OUTLINES

District 3
Southwest Wisconsin Vocational-Technical School
Fennimore

BUSINESS ACCOUNTING I (101-311)

Schedule of Class Meeting: Two hours each day, or ten hours of class meetings per week

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 1 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Material and Objectives

1. Text and Other Instructional Materials

   a. Accounting Principles, 10th Ed., by Niswonger and Fess. Cincinnati: South-western Publishing Co., 1969.

   b. Single-sheet guide provided for each chapter of the textbook. These sheets listed the basic terms and principles to be noted in a particular chapter plus the required problems. "Self-enriching problems" were also listed for those students who were ahead or chose to do extra work in a given area.

   c. A flow-chart was provided for each student describing the general procedure to be used in proceeding independently through the chapters of the text.

   d. Twenty-six 10-key printing calculators were available in the room on each desk for the students' use in working the accounting problems.

2. General Course Objectives

   The objectives were not summarized for the course as a whole. Other than the statement of objectives available in the course textbook, the study guide provided for each chapter were the only source of written chapter objectives. On the study guides these objectives were to be inferred from the listing of the important terms and principles to be presented in the chapter.

The following is a listing of the main parts of the accounting text which covered the first 12 chapters:

Part I - Accounting Processes for a Service Enterprise (3 chapters)
Part II - Accounting Processes for a Merchandising Enterprise (3 chapters)
Part III - Receivables, Payables, Inventories (2 chapters)
Part IV - Deferrals, Accruals, and Long-lived Assets (2 chapters)
Part V - Accounting Systems (3 chapters)

3. General Course Organization

Each student was to proceed through the chapters of the accounting text and the problems assigned in the workbook at his own pace. A minimum of 12 chapters were to be completed during the semester. At this point a practice set could also be done.

Approximately three times during a week the instructor would hold a class discussion period in which he would present to the class through lecture the topic on which most of the students were working. Those students who wished to continue with their work rather than listen to the lecture could do so. At other times, small groups of students working in the same area were taken aside for more teacher explanation of the topic. The larger portion of the ten hours per week were spent by the students on independent work through the chapters and taking tests at the end of each chapter.

If a student completed the 12 chapters and the practice set before the end of the semester, he could leave the course early. If a student did not complete the minimum requirement of 12 chapters, he could either take a reduced grade for the course or he could re-register the next semester for the course and continue where he left off.

4. Checking of Work

As accounting problems were completed they were handed in to the teacher for checking and returned. It was possible for a student to check selected answers to the accounting problems as they were being worked. Completed problems, however, were all corrected by the instructor and checked again before they were returned. These problems were checked as having been done; they were not graded.

At one point during the semester a committee of students were formed for the checking of work and for assisting students as they proceeded through the problems. One student who was particularly advanced in each of the four groups was asked to act as the head of the group and check the problems for the other students as they were completed. In this way the teacher was to be freer to assist students needing special help. This grouping of students and group checking of problems was discontinued when the students objected to it. They would rather check with the teacher himself or with their immediate neighbor than with the one particular student designated as the head of the group.

5. Administration of Tests

Chapter tests could be taken whenever a student completed a chapter and felt ready for the examination. If the test was not judged to be satisfactory by the teacher according to what he expected the student to do, a second test was taken. A student would receive the grade he received on the second administration of the test. More than one form of each test was available.

District 9
Milwaukee Area Technical College
Milwaukee

ACCOUNTING I AND II (101-301, 101-311, 101-313) 5 credits each

Schedule of Class Meetings: One hour, five times a week

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at designated times.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. General Recordkeeping, 6th Ed., by Huffman, Stewart, and Schneider. New York: Gregg Division, McGraw-Hill Book Company, 1971. (Including Student Activity Guide Working Papers)

   b. College Accounting, Part I, II, and III, 8th Ed., by Carson, Carlson, and Boling. Cincinnati: South-western Publishing Co., 1967. (Including workbooks and working papers)

   c. Several adding machines available at the back of the classroom for the use of students as they complete accounting problems.

2. General Course Objectives

   The objectives of the course were presented to the students orally during the first few weeks of the course in which the class is kept together as a group for the presentation of the basic accounting principles. In addition to this, the requirements of the course were presented to the students in the form of assignment sheets listing the necessary chapters and assignments to complete.

   Also included in this assignment sheet were the dates on which these chapters should be completed in order to finish the course in one semester. The points at which tests were required

were also listed on the sheet. Different assignment sheets were provided for the Basic Recordkeeping course, Accounting I, and Accounting II.

The Basic Recordkeeping course required the satisfactory completion of nineteen chapters (or units) in the text Basic Recordkeeping. These included the following topics: checking accounts, cashier records, payroll records, payroll systems, retail sales records, purchase records, fundamentals of accounting, debits and credits, journal entries, ledger accounts and posting, purchases on credit, cash payments, sales on credit, cash receipts, trial balance, financial statements, accounts payable and accounts receivable, and combination journal.

The Accounting I course required the satisfactory completion of fifteen chapters (or units) and one practice set in the text College Accounting. These chapters included the larger accounting area of the sole proprietorship form and business (both mercantile and personal service) enterprises and partnerships.

Accounting II students continued to work in the College Accounting textbook and were to complete fourteen chapters and one practice set. This portion of the course was devoted to corporation accounting, including manufacturing enterprises.

3. General Course Organization

A student may enter the accounting course on any Monday. At the beginning of the semester when most of the students began the course, group presentations were made by the teacher to introduce the subject matter. As soon as students began to move through the assignment sheets at their own pace and were at a greater number of places in the course content, these group presentations were held less frequently or were held with smaller numbers of students as it was necessary.

Most of the class period each day was spent by the students working individually through the accounting textbook. The instructor was available at all times to provide any necessary extra assistance.

If a student completed the course before the end of the semester, he could leave the class early or he could continue on to a more advanced accounting course, such as Accounting I or Accounting II. In some instances a student who had had previous experience in accounting could take selected unit tests for the purpose of waiving those topics in the course with which they were already familiar. The general practice, however, was for a student to designate that course in which he chose to enroll and to begin at the beginning of that course sequence.

4. Checking of Work

As the assigned problems for each chapter were completed by a student, they were to be submitted to the teacher for checking and grading. These materials were assigned a letter grade and were returned individually to each student in order to discuss any apparant problems.

5. Administration of Tests

Tests could be taken whenever a student reached a point on his assignment sheet for a test covering several chapters. Two days could be used for any one test. If more than one day was required, the test was kept by the teacher in between the testing sections. The final course grade was a combination of problem and test grades, with primary weight given to the latter.

District 3
Southwest Wisconsin Vocational-Technical School
Fennimore

BUSINESS MATHEMATICS (804-320) 3 credits

Schedule of Class Meeting: One hour, three times a week

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 1 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Business Mathematics for Colleges, 5th Ed., by Rice, Boyd, and Wayne. Cincinnati: South-western Publishing Co., 1966. (A combination text-workbook)

2. General Course Objectives

   No specially written materials outlining the course objectives were distributed to the students. The minimum course requirements were to complete four units in the text-workbook. The textbook, Business Mathematics for Colleges, was designed by the publisher to provide a quick and intensive review and basic application of mathematics relating to such calculations as inventory and turnover, depreciation, distribution of overhead, taxes, insurance, annuities, and other typical business calculations. Each lesson consisted of a discussion of principles with illustrations, followed by two or more workbook problems.

3. General Course Organization

   During all of the class meetings students were to be working through the units in their text. The teacher was always present to provide extra assistance. All of the instructor's time in the class was spent working with individual students or in administering tests.

If a student completed the four required units early, he was permitted to leave the class. If he did not complete the minimum requirements, he was to continue into the next semester. A student was to have six weeks into the next succeeding semester to complete the course.

4. Checking of Work

For each chapter in the text-workbook, each student was given an answer sheet to use in checking his problems. When he completed these problems and had checked them himself, they were turned in to the teacher for recording.

5. Administration of Tests

When a student completed a chapter and felt prepared to take the chapter test, he was to request the test one day in advance of the class period in which he wished to take it. If a student did not obtain at least 75% correct responses on the test, he was asked to review and repeat the examination before going on. A student's course grade was based on his test achievement. A student's test grade was the average of his performances on a given chapter test.

District 9
Milwaukee Area Technical College
Milwaukee

BUSINESS ARITHMETIC (R. Bus. 300, R. Bus. 301, R. Bus. 302) 4 or 5 credits

Schedule of Class Meetings: The three courses identified as Basic Business Arithmetic (300), Business Arithmetic (301), and Advanced Business Arithmetic (302) meet simultaneously for one hour, five days per week.

Scheduling pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 2 (Objective to develop student to a designated criteria by altering the duration of instruction. Fixed instructional track; no initial pretesting and placement at a variety of levels.)

Course Materials and Objectives

1. Texts and Other Instructional Materials

   a. Applied Business Mathematics, Abridged, 8th Ed., by Piper and Gruber. Cincinnati: South-western Publishing Co. (including Problems and Drills)

   b. Business Arithmetic Supplementary Information and Assignment Units by Marie E. Martinka. Milwaukee Area Technical College.

   c. Programmed Business Mathematics, Books 1, 2, and 3, 2nd Ed., by Huffman and Schmidt. New York: Gregg Division, McGraw-Hill Book Co., 1968.

2. General Course Objectives

   Specific course objectives are available for all 84 of the instructional units which comprise the three Business Arithmetic courses. Because of the number of these specific objectives, only the general objectives for each course are listed here. These were the following:

   R. Bus. 300

   To review the four fundamental operations with decimals and fractions and the principles of percentage.

To develop facility and accuracy in handling numbers.

To apply the basic arithmetic operations in solving simple business problems.

R. Bus. 300 required the satisfactory completion of 24 instructional units in the text Applied Business Mathematics.

R. Bus. 301

To review the fundamental operations with whole numbers, decimals, fractions, and percents.

To gain speed and accuracy in computation.

To use the fundamental operations in the following business applications: trade discount, invoicing, averages, bank reconciliation, ordinary and exact simple interest, discounting non-interest-bearing negotiable instruments, and payroll.

R. Bus. 301 required the satisfactory completion of 30 instructional units selected from Business Arithmetic Supplementary Information and Assignment Units, and Programmed Business Mathematics, Books 1 and 2.

R. Bus. 302

To gain speed and proficiency in computation.

To solve business problems in the areas of negotiable instruments, depreciation, financial statements, trade discount, merchandising, taxes, insurance, and securities.

R. Bus. 302 required the satisfactory completion of 25 instructional units in Programmed Business Mathematics, Books 2 and 3.

3. General Course Organization

A student could enter the Business Arithmetic course on any Monday during the semester. When he did so, he first took the Business Arithmetic Entrance Test to determine his current level of background. On the basis of this test, certain units could be omitted. An individual course outline was developed for each student on the basis of this test. Both the student and the teacher kept a copy of the outline designating which units in the course sequence they should follow for any of the three courses.

Each day a student worked individually through the text and drill material. The teacher was also available for extra assistance as it was needed. If a student completed a course early, he could leave the class or continue into a more advanced arithmetic area.

4. Checking of Work

As a student completed the arithmetic problems in a given unit, he checked them himself with an answer key kept at the teacher's desk on a "checking table". When he had made any corrections necessary in these problems, they were submitted to the teacher for recording. Completed assignments were then destroyed.

5. Administration of Tests

Unit tests were taken in class by students when they reached a testing point in their course outline sequence. If a test was failed, extra problems were assigned and the test repeated.

The final course examination was administered by appointment in the Instructional Resource Center of the MATC. A student's final grade in the course was the average of twice his unit test grades plus the grade on the end-of-course examination. The final examination could be retaken if necessary after a minimum period of three weeks.

District 4
Madison Area Technical College
Madison

SALESMANSHIP (104-310) 3 credits

Schedule of Class Meeting: Four hours of class meeting were scheduled per week. In one section these four hours were on four different days. In the second section of the class, 2 one-hour and 1 two-hour class periods were scheduled.

Each class met all four hours a week for the first three weeks of class. After this the class met as a group only on Monday, or one hour per week. The other three hours were released to permit the student to proceed independently through the individualized instructional units.

Schedule pattern for analysis: No. 2 (Some classes scheduled to meet at a designated time; some classes released for independent student work.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Basic Salesmanship by Ernest. New York: McGraw-Hill Book Co., 1969. (A text-workbook)

      This text-workbook consisted of nine units to be completed independently by the student. Each unit consisted of a series of reading and student activities to be completed and check with the teacher.

   b. Audio-tape lectures were prepared for two additional units, making a total of eleven instructional units comprising the larger independent course activity of the students.

   c. "Great Ideas in Selling" by Earl Nightengale. A series of audio-tapes used with the class as a whole during the one hour of the entire class meeting per week.

2. General Course Objectives

The following are the titles of the eleven units to be used independently by the students. Each unit was followed by a statement of the objectives to be met in that unit.

Unit 1 - Is Selling Important
Unit 2 - Success in the Right Sales Job
Unit 3 - What is a Sale
Unit 4 - Why do People Buy?
Unit 5 - Knowing Your Product
Unit 6 - Developing a Sales Personality
Unit 7 - Gaining Attention and Interest
Unit 8 - Creating Desire
Unit 9 - Obtaining Conviction
Unit 10 - Inducing Action
Unit 11 - How to Sell More

3. General Course Organization

During the first three weeks of the semester, the course met as a group for a basic introduction to the area of salesmanship. During this time students participated in several group activities or made oral presentations in which they had the opportunity to express their ideas on various current topics and get to know the other members of the class.

After the introduction of the independent unit-work materials, only the Monday class meetings were held, or one hour of group meeting per week. During these times the audiotapes entitled "Great Ideas in Selling" were the object of class and small group discussion.

The remaining three hours per week were released periods in which the students were to be working on their eleven individualized units. These three hours for each of the two sections of the class were the times designated for student-teacher conferences as a unit was completed. These conferences were held in the instructor's office. Appointments were scheduled, and students' arrangements themselves in order according to the times they arrived at the teacher's office door. As each student completed the checking of his work, the next would go in.

4. Checking of Work

As a student completed the problems in each of the eleven units, he was to check this work with the teacher in a personal conference. These conferences were to be held during the regular scheduled class meeting times that had been released for independent student work. During these

hours the teacher was available in his office for personal conferences. Every student had each unit which he completed checked in this fashion. The "learning pacers" and recorded activities in each unit were not graded. The matching questions, short essay and case problems in each unit were graded as they were discussed with a student. He was required to achieve 70% accuracy on these before he proceeded to a new unit. The projects in a unit, however, received either a passing or a failing grade. The grade which a student received on a unit, therefore, was primarily based on the objective-type questions.

If a student completed the eleven units and the achievement test early, he would be required to attend only the one weekly meeting of the course.

5. Administration of Tests

At the completion of the eleven units, an achievement test was administered. Letter grades were assigned on this test. A grade of less than 70% would require a student to retake a second or possibly a third final achievement test.

District 5
Kenosha Technical Institute
Kenosha

MERCHANDISE DISPLAY (104-119)

Schedule of Class Meetings: Five hours of class meetings per week; one hour conducted as lecture, two 2-hour laboratory sessions. The merchandise display laboratory was available other times for additional work on individual student displays.

Schedule pattern for analysis: No. 3 (Scheduled class meetings with provision for additional work in a laboratory outside of class.)

Because the class was divided into two sections of unequal size, special arrangements were made by the teacher for further dividing the larger section of 26 students. The small section consisted of only four students. The larger section of 26 students was divided in half and asked to choose one of the 2-hour lab periods as the time during which they were responsible for constructing a merchandise display. The second 2-hour lab period was to be used by every group of thirteen as a planning period for the display to be constructed during the same week. In this respect this course could be described as meeting the criteria used for Scheduling Pattern No. 2 in which a portion of the scheduled class time was released. Since each group of students had a specific assignment during this time of preparing for the display which was to be constructed during the scheduled laboratory period, scheduling option (No. 2) was not chosen. It was described as option No. 3 in which the availability of the laboratory outside of class for extra work is also included.

Type of Individualized Instructional Model: No. 4 (Objective to develop student to designated criteria with provision for student selection of course-unit progress. Duration of progress flexible.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Manual of Merchandising Display, Procedures and Principles by Judy E. Paul and Kenneth H. Mills, Kenosha Technical Institute.

   b. Various merchandise display materials and props were available in the marketing display laboratory for student use.

2. General Course Objectives

The following objectives were presented to the students in written form. Their accomplishment was to be judged by the teacher on the basis of (1) written examinations on the text materials and (2) the evaluation by the teacher of each student display.

a. To provide the student with an understanding and appreciation of the importance of display in merchandising.

b. To stimulate the student's creativity in the area of promotions.

c. To understand the significance of display in relation to other promotional techniques.

d. To provide the student with the knowledge, skills and understanding of display which will enable him to arrange functionally effective display areas.

e. To provide practical experience in planning and constructing displays to assure and insure promotions.

f. To provide an opportunity to evaluate all types of displays.

The following are the topics covered in the textbook:

I. Introduction to Display
II. Demonstration of Props -- Preparations and Procedures
III. Later Preparation
IV. The History of Display
V. Introduction to Principles of Design and Arrangement
VI. Balance and Its Parts
VII. Introduction to Principles of Design and Arrangement
VIII. The Five Aspects of Harmony
IX. The Elements of Proportion
X. Rhythm and Its Aspects
XI. Color -- Definitions of Terms and Principles
XII. Color Schemes

3. General Course Organization

Throughout the semester the content of the course textbook was read by the students as well as presented in the group lectures held one day a week. Written examinations were administered to the class as a whole on this material at designated times during the semester.

The first six weeks of the course were spent on show card lettering in which the teacher worked with each student individually as he practiced on this activity. The remainder of the semester was spent learning to apply the principles of merchandise display.

During the two scheduled laboratory sessions, students were required to construct displays using various products and meeting basic requirements for the type of display to be completed. The specific display to be developed was the student's choice. According to the student's previous accomplishment, he may be asked to do a display of a certain type. He may be asked to omit doing a display of a type to which he had already been successful. It was this choice in the type of display activity by the student which made this course most adaptable to the individual needs and interests of the students. It was also at this point that the student was given the most liberty in choosing his areas of work.

Approximately eight displays were to be prepared by the students after the first six weeks of the course. These displays were to incorporate the various principles of display which were presented in the weekly group lecture.

After approximately fourteen weeks, it was possible for a student to have completed all the basic requirements of the course and to have taken all the written examinations. At this point a decision could be made by the teacher that the student no longer need to attend the course. Only if there were identifiable areas of weakness in applying the basic principles of display was it necessary for a student to remain and continue to work on these activities.

Because there was no provision in the present organization of the school's courses for a student to complete a course beyond one semester of enrollment, a student could not be given a grade of "incomplete" in the course. While he would have the option of completing the course early, it was not anticipated that he would be unable to complete it within one semester. By allowing students to leave early, those needing more class time and teacher assistance were able to receive it.

4. Checking of Work

As each display was completed by students during the designated lab days, all of the students present and the teacher participated in an evaluation of each display. A student was asked to criticize his display, followed by an evaluation by the teacher. Points for each display were tallied on an evaluation chart so as to maintain a cumulative record of each student's work.

5. Administering of Tests

All written tests were administered to the class as a group following the presentation of a designated topic in the weekly lectures. Several forms of the same examination were available, and when a student did poorly on a given topic he was asked to repeat the examination in that area a second time.

Both the teacher and students participated in judging a student's course accomplishments and in deciding which activity a student should pursue. When, in the teacher's judgment, a student had met the objectives of the course and had taken all of the written tests, he could be allowed to leave the course.

District 8
Waukesha County Technical Institute
Pewaukee (Waukesha)

FASHION FABRICS (104-117) 2 credits

Schedule of Class Meetings: One hour, two days a week

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 1 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Know Your Merchandise, 3rd Ed., by Wingate, Gillespie and Addison, New York: McGraw-Hill Book Co., 1964.

   b. Textile Handbook, American Home Economics Association.

   c. Fourteen instructional packets prepared by the instructor and correlated with the textbook, Know Your Merchandise. Each unit consisted of one or more project sheets containing the learning activities and handouts for that unit. Each set of project activities was preceded with a statement of the learning objectives for that project. All of these unit materials were kept in a notebook maintained by the student. Also available in the classroom were materials and equipment necessary to complete the learning activities of the units. Such materials were available as fabric samples, slides and tapes, and a microscope for viewing fibers. In addition to the required textbooks for the course, other books were available for assigned supplementary readings in the unit learning activities.

2. General Course Objectives

   The following were the general objectives of the course as they were presented in written form to the students:

1. Differentiate the effect of twist, novelty yarns, ply, blends, stretch, and bulk yarn in fabric construction.

2. Identify the type of fabric construction used for the garment.

3. Describe the specific purposes of the major fabric finishes in relationship to product end use.

4. List the natural and man-made generic families.

5. Name the general use and performance characteristics of each of the fibers.

6. Perform and recommend home fabric care methods.

7. Specify the required government regulations regarding textiles for the consumer.

Space does not permit a listing of the objectives for each project within the units. The following were the titles of the fourteen units:

I Place and Use of the Microscope
II Fibers - Natural
III Fibers - Man-made
IV Yarns
V Cloth
VI Finishes
VII Mechanical Finishes
VIII Mechanical Finishes
IX Chemical Finishes
X Preventative Finishes
XI Special Purpose Finishes
XII Color
XIII Care of Textile Cloths
XIV Textile Legislation

3. General Course Organization

During each class meeting a student was to proceed through the learning activities in each unit at his own pace, asking the assistance of the teacher whenever necessary. Materials in the classroom or in the library were to be used as needed by the student. While the classroom was not available to students for work outside of class, some students would come back after school to work with the microscope at times that no other students were in the classroom.

Because of the apparent desire of the students to continue to work on their unit activities beyond scheduled class time, the course might justifiably have been categorized as meeting the description of scheduling pattern No. 3 rather than scheduling pattern No. 1. Since there was such restricted availability of the classroom laboratory materials outside of class, scheduling pattern No. 1 was considered more appropriate. The moving of WCTI to new classroom facilities has now made it possible for greater material availability. It was possible for a student to complete the fourteen units early and leave the course, as the majority of students did. It would also have been possible to continue the course into the next semester.

4. Checking of Work

As worksheets and experiments were completed in the learning activities of the individual units, the written report of the assignment was submitted to the teacher. Often these were graded immediately and returned to the student as he waited. When this was not possible, the materials were collected by the teacher and returned when they had been checked. Altogether there were 45 different activities within the fourteen units to be completed. These were not assigned grades, merely checked off as having been completed.

5. Administration of Tests

In addition to the evaluation of written assignment work, each unit had a post-test which was either written or oral. Those parts of a written test which a student missed were reviewed, and the parts of the test which were incorrect were retaken. Tests themselves were not returned to the students. Grades were not assigned, as a student's status in this course was considered to be either "A", satisfactory completion, or "Incomplete". A student proceeded on when he had satisfactorily met the objectives for a unit. When he completed the course, his grade was an "A".

District 8
Waukesha County Technical Institute
Pewaukee (Waukesha)

NON-TEXTILES (104-121) 3 credits

Schedule of Class Meeting: Three class meetings per week of one hour each

Schedule pattern for analysis: No. 1 (All class meetings scheduled at a designated time.)

Type of Individualized Instructional Model: No. 4 (Objective to develop student to designated criteria with provision for student selection of course unit progress. Duration of progress flexible.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Know Your Merchandise, 3rd Ed., by Wingate, Gillespie and Addison, New York: McGraw-Hill Book Co., 1964.

   b. Fifteen Instruction packets prepared by the instructor and correlated with the textbook. Each unit consisted of a presentation of the unit objectives and a list of the required learning activities for each objective. Each presentation of the unit was color-coordinated to identify it as a listing of project activities, a work sheet or experiment to be completed, or a special handout to be read. These materials were kept by students as they developed their own notebooks. Also available in the classroom were product samples for the various units and materials to be used by the students in their projects and experiments, such as magazines and special equipment.

2. General Course Objectives

   The following are the titles of the fifteen units prepared for the course. Each of the units coincides with a chapter in the course textbook, Know Your Merchandise.

   I Leather
   II Shoes
   III Gloves, Handbags, Luggage, and Umbrellas
   IV Furs
   V Jewelry
   VI Cosmetics

VII Foods
VIII Household Utensils and Gadgets
IX China, Earthenware, and Plastics for Dinnerware
X Glass
XI Silver and Other Metals for Tableware
XII Furniture for the Home
XIII Plastics
XIV Rubber
XV Paper and Other Stationery Products

3. General Course Organization

Students were to select any ten of the fifteen units as those which they should complete to satisfy the course requirements. These units could be selected in any order according to a student's career interests. When these ten general topics had been completed, a student was to complete an in-depth study of one of these topics and to prepare a training manual that might be used by another person or a hypothetical employee to learn about the product.

These units were to be the primary means of presentation of the course material during the three weekly class meetings. The same information was not presented by the teacher in lecture form since students were working on different units at any given time. The teacher was present in the classroom for any assistance during all class meetings. When a student had completed ten units and the project, he was no longer required to attend class. If he did not complete ten units within one semester, he received a grade of "Incomplete" and was allowed to continue his work into the next semester.

4. Checking of Work

When assignments or projects with the units are completed, the completed sheet for the unit was handed to the teacher for checking and returned at a later period.

5. Administration of Tests

At the end of each unit it was originally planned to have both an oral and a written test. The written test was to be passed with at least 80% accuracy. If this were not true, the same quiz was to be reviewed and retaken. The grade received was the average of the two. The oral test was administered personally by the teacher.

It was soon realized that students were being held up in their progress as they waited to take the oral examination. The procedure was then changed to require either a written or an oral test at the end of each unit, rather than both.

A student proceeded to a new unit of his choice when he had satisfactorily met the objectives for the succeeding unit. When he had completed ten units and the project, his grade was assigned on the basis of his test scores. If he did not complete the required number of units, an "Incomplete" was assigned and the course was continued.

District 9
Milwaukee Area Technical College
Milwaukee

SHORTHAND I (106-305) 5 credits

Schedule of Class Meetings: Two-hour meetings, five times per week, for a total of ten hours per week

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Gregg Programmed Shorthand by Hosler, Condon, Grubbs, and Huffman. New York: Gregg Division, McGraw-Hill Book Co., 1969. (Including dictation tapes correlated with the textbook)

   b. Four-channel dictation equipment for use in class by students. Students were to request tapes which the teacher placed on one of the four channels

   c. When a student has completed the shorthand theory in the programmed text he may use other speed building tapes or check out dictation records from the library for use in the home.

   d. Electric typewriters were available to each student for transcription of his shorthand notes.

2. General Course Objectives

   The basic requirements of Shorthand I were to satisfactorily complete the theory presented in the first 48 lessons of the programmed text and to attain a dictation speed of at least 40 wpm for three-minutes with 95% accuracy. A dictation speed of 50 wpm for three-minutes was required for a grade of "B", 60 wpm for three-minutes was required for an "A".

3. General Course Organization

A student was permitted to begin the study of shorthand theory on any Monday. When a student entered a course he was introduced by the teacher to the use of the programmed text, the dictation tapes every sixth lesson, and the theory tests at the end of each lesson.

As a student proceeded through the programmed text during the class hour, he would periodically be asked either to read portions of a daily assignment or to take "live" dictation from the teacher. Those students who had completed the shorthand theory and were working on the development of shorthand dictation speed would take three-minute dictation tests from the teacher as they were ready.

When a student attained the minimum dictation speed required or the dictation speed with which they were satisfied above that required, he could leave the course or enroll in the next level of shorthand instruction. Since students were entering the course throughout the semester, there was the option for any student to continue the course beyond the end of the regular fall semester.

4. Checking of Work

As each student completed each lesson in the programmed text, he was to ask for the shorthand theory check test for this chapter. Student progress sheets were kept for each student indicating the lesson which he had completed and his theory test scores. These theory tests, however, were not used as a primary means of evaluation.

5. Administration of Tests

As student became ready to attempt higher shorthand speeds, the instructor would dictate these three-minute tests. At the teacher's discretion, students were asked to attempt a higher dictation speed or to take tests at given times when several students could take the same dictation.

District 11
Lakeshore Technical Institute
Manitowoc

SHORTHAND I (106-111) 4 credits

Schedule of Class Meetings: One hour, five days a week in a regular open lab. A total of ten hours were to be spent on shorthand during the week.

Schedule pattern for analysis: No. 2 (Some classes scheduled to meet at a designated time; some classes released for independent student work.)

Because of the open lab which was continually available as the primary instructional area for all other business skill courses in Manitowoc, this Shorthand I course could justifiably have been classified as meeting the description of scheduling pattern No. 3 (all classes scheduled at a designated time plus the availability of an open lab for extra work out of class). It was considered, however, that schedule pattern No. 2 more appropriately described the flexibility of class meeting arrangements for the Shorthand I course, the only class in the open lab which had a regularly scheduled class time for even a portion of its class work. Not only was the open lab available during the class meetings, but at all other times as well.

Type of Individualized Instructional Model: No. 1 (Objective to develop a student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Gregg Programmed Shorthand, by Hosler, Condon, Grubbs and Huffman. New York: Gregg Division, McGraw-Hill Book Co., 1969. (Including shorthand dictation tapes correlated with the text.)

   b. Gregg Speed Building Library and Dictation Disc records for use by students when they have completed the shorthand theory portion of the programmed text. Multi-channel dictation equipment and cassette tape recorders available for the use with these materials.

c. Electric typewriters were available in the shorthand portion of the open lab for the use of the students. There were 15 typewriters available.

2. General Course Objectives

A primary objective of the beginning shorthand course was the development of basic shorthand theory knowledge and the initial development of shorthand dictation writing speed. The following were the standards required on the three main elements of course work:

Shorthand Theory Tests

1116-1200 points = A = 93%
1044-1115 points = B = 87%
936-1043 points = C = 78%
840- 935 points = D = 70%

Brief Form Test - 100 Points

93-100 = A
87- 92 = B
78- 86 = C
70- 77 = D

Shorthand Dictation Speed, 3-Minute with 95% Accuracy

70 wpm = A
60 wpm = B
50 wpm = C

3. General Course Organization

Those students who chose or were advised after pretesting to enroll in the beginning shorthand course proceeded independently through the lessons of the Programmed Shorthand text. This same independent work was continued during those hours that the class met together as a group. As a lesson was completed, the 25-word theory test was requested from the teacher. A time schedule was provided to indicate target dates for the completion of the lessons in the programmed text.

At various times students received "live" dictation from the instructor in addition to the taped dictation available

which was correlated with the text. As students completed the theory portion of the text, three-minute dictation tests were also dictated by the instructor either at designated hours or upon a student's request.

If a student completed a course early, she could proceed on to the more advanced level of shorthand instruction. If she did not complete the course within one semester, she would continue into the next.

In order to keep a record of the time which a student spent working on shorthand, a time clock was used each time a student entered or left the classroom.

4. Checking of Work

As a student proceeded through the lessons in the programmed text, he kept a worksheet of the lessons completed both at home and in class. These sheets were checked daily by the teacher.

Every Friday a student submitted the shorthand notebook in which he had done his assignments during the week for checking. A record was kept on which each student indicated the lessons completed, the theory tests completed, and the dictation speed he had successfully passed.

5. Administration of Tests

Shorthand theory tests were administered after each lesson. If there were more than five errors on the 25-word test, the lesson was reviewed and the test retaken.

Dictation tests were administered at designated hours or upon a student's request when the student had completed the theory portion of the text.

District 11
Lakeshore Technical Institute
Sheboygan

SHORTHAND I (106-111) 4 credits

Schedule of Class Meetings: One hour, five times a week. Shorthand dictation equipment available for student use whenever the room was not in use or when otherwise permitted by the teacher to come into another class.

Schedule pattern for analysis: No. 3 (All classes scheduled to meet at a designated time; laboratory facilities available for extra course work in addition to the scheduled class.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Material and Objectives

1. Text and Other Instructional Materials

   a. Gregg Programmed Shorthand by Hosler, Condon, Grubbs and Huffman. New York: Gregg Division, McGraw-Hill Book Co., 1969. (Including shorthand dictation tapes correlated with the textbook.)

   b. Gregg Speed Building Tape Library, one-minute dictation letters and other supplementary dictation materials. Multi-channel dictation equipment and cassette tape recorders were available for the use of students with this material.

   c. Teacher-made shorthand dictation test tapes

   d. Electric typewriters were available for the use of each student for the transcription of their shorthand notes.

2. General Course Objectives

   The primary objective of the Shorthand I course was to acquire a knowledge of basic shorthand theory and to begin the development of shorthand writing skill at progressively higher dictation speeds. The following were the course objectives on which semester grades were to be based:

Theory Test Scores	1116-1200 = A = 93% 1044-1115 = B = 87% 936-1043 = C = 78% 840- 935 = D = 70%
Brief Forms	93-100 = A 87- 92 = B 78- 86 = C 70- 77 = D
Dictation Speed (3-minute timings; 95% accuracy)	70 wpm = A 60 wpm = B 50 wpm = C

3. General Course Organization

Those students who had had shorthand instruction previously were administered a pretest to determine whether they would be in Shorthand I or Shorthand II. All students who were advised to take the Shorthand I course began their instruction at the beginning of the Gregg Programmed Shorthand text. While a suggested timetable was provided to encourage students to complete the course within the one semester, students could proceed through the programmed text at their own pace.

During the daily class meetings, as students completed the lessons in the programmed text, the teacher was always available for any extra assistance and for the administration of the shorthand theory tests at the end of each lesson. Periodically a single student or small group of students would be asked to read from their shorthand homework notes or to take dictation from the teacher.

As students completed the shorthand theory lessons they had free access to the dictation tapes correlated with the textbook. When they had finished the shorthand theory portion of the text, other supplementary dictation materials were available for their use. This tape dictation was also supplemented by "live" dictation from the teacher as students were brought together in small groups. Shorthand dictation tests were also administered either "live" by the teacher or through the use of taped dictation tests.

It was possible for a student to complete a course early and leave the course. It was not possible for him to begin a second shorthand course until the beginning of the spring semester. If a student did not complete the course within one semester, he would continue into the new semester until he had met the minimum course requirements.

4. Checking of Work

As students proceeded daily through the lessons in the Programmed Chorthand text, each kept a worksheet of the lessons which he had completed both in class and at home. This sheet was to be signed daily by the instructor as a means of continually assessing the progress of the students.

As a student completed a lesson, he was to take a 25-word shorthand theory test. This test was obtained from the instructor and was either checked immediately with the student or was returned the next day.

5. Administration of Tests

In addition to the 25-word shorthand theory tests at the end of each lesson, brief form tests and dictation tests were also to be administered as students were prepared to take these. Both the brief forms and dictation tests were to be repeated until minimum levels of success were attained. New material was used for each three-minute dictation test. These tests were to be passed with 95% accuracy at a given speed level before proceeding to the next.

District 11
Lakeshore Technical Institute
Manitowoc

SHORTHAND II AND III (106-113, 106-313, 106-315, 106-115) 4 credits

Schedule of Class Meetings: A total of ten hours per week were to be spent studying shorthand, at least five of these hours in the open lab and other five in the lab or at home.

Schedule pattern for analysis: No. 4 (No classes scheduled; all work completed in an open laboratory at a time chosen by the student.)

Type of Individualized Instructional Model: No. 2 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels.)

Because Shorthand I, II, and III were offered simultaneously, those students who waived Shorthand I could enter either Shorthand II or III. Once a student began Shorthand II or III, he started at the beginning of the designated text for the course.

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Gregg Shorthand for Colleges, Diamond Jubilee Series, Volume 2, by Leslie, Zoubek, and Hosler. New York: Gregg Division, McGraw-Hill Book Co., 1965. (Used for Shorthand II)

   b. Gregg Speed Building for Colleges, Diamond Jubilee Series, by Gregg, Blanchard, Baldwin and Popham. New York: Gregg Division, McGraw-Hill Book Co., 1966. (Used for Shorthand III)

   c. The Secretarial Skills Program: A Course of Programmed Instruction by the Sterling Institute. New York: Training Development Center, Inc., 1968. This series of programmed materials consisted of twelve booklets on various secretarial transcription topics. Six of these were to be completed by the Shorthand II students and the remaining six by the Shorthand III students.

2. General Course Objectives

The primary objective of both Shorthand II and III was to build shorthand dictation speed and to begin to become familiar with basic transcription techniques. The following were the three-minute dictation test standards with a 95% accuracy requirement:

Shorthand II	Shorthand III
100 wpm = A	140 wpm = A
90 wpm = B	120 wpm = B
80 wpm = C	100 wpm = C

Post-tests for each one of the "Secretarial Skills Program" were to be completed at a level judged satisfactory by the teacher. The following were the topics covered in these twelve booklets:

A. "How to Divide and Combine Words"
B. "How to Punctuate"
C. "How to Abbreviate and Capitalize"
D. "How to Spell", Parts 1 and 2
E. "The Secretarial Style Manual"
F. "Telephone Tips"
G. "Letters That Count"
H. "The Crisp Look"
I. "Dictation Skill Builder"
J. "Typing, Transcribing, and Filing"
K. "For the Secretary Only"
L. "The Secretary's Guidebook"

3. General Course Organization

After an introductory period of orientation to the open laboratory and pretesting of each student, students were required to spend at least five hours in the open lab while working independently through their textbook lessons. At least five lessons were to be studied during a week to allow completion of the text within one semester. In order to guide students in their use of the shorthand dictation materials for speed building, sheets were prepared listing the tapes, cassettes, or records available at designated shorthand speeds.

Other than certain hours on Friday of each week, which were scheduled for three-minute dictation tests, students were free to use the lab at hours of their choosing. They were to keep track of the hours which they spent in shorthand by punched tabulation cards on a time clock.

A student who completed the minimum requirements of a course early could choose to continue on to an advanced course or remain in the first course and work for a higher grade level. If a student did not reach the minimum requirements of the course, she could remain in the same course beyond one semester until she was able to satisfy these minimum levels of accomplishment.

4. Checking of Work

Two primary means were used to assess the progress of students as they proceeded independently through the lessons and textbooks. First, worksheets were kept weekly by each student stating which dictation materials they had used and which dictation speed they were attempting to master. These sheets were checked daily by the teacher.

Secondly, each Friday the shorthand homework notebook of each student were submitted to the teacher for checking.

5. Administration of Tests

Three-minute dictation tests were administered at designated hours on each Friday to those wishing to attempt a given speed level. These tests could also be taken at other times by requesting that the teacher dictate such a test to a student. These tests were to be passed with 95% accuracy and were either handwritten or typewritten. A given speed level was to be passed at least twice in order to establish the grade for that speed.

The post-tests for the "Secretarial Skills" materials could be taken at anytime a student was prepared for this examination.

District 11
Lakeshore Technical Institute
Sheboygan

SHORTHAND III (106-115) 4 credits

Schedule of Class Meetings: One hour, five days a week. Students were permitted to use the shorthand dictation laboratory facilities whenever these were available outside of the regularly scheduled class.

Schedule pattern for analysis: No. 3 (All classes scheduled to meet at a designated time; laboratory facilities available for extra course work outside of the regular class.)

Type of Individualized Instructional Model: No. 1 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Gregg Speed Building for Colleges, Diamond Jubilee Series, by Gregg, Blanchard, Baldwin, and Popham. New York: Gregg Division, McGraw-Hill Book Co., 1966.

   b. Sixteen instruction units prepared by the teacher for each five lessons in the course text. These units contained the specific objectives for each set of five lessons and the procedures to be followed by the students as they worked independently through the shorthand text. Each unit contained a self-test and a post-test which were to be taken successively when a student had completed the five shorthand lessons for that unit.

   c. Gregg Speed Building Tape Library available for student use on the multi-channel dictation equipment. Six cassette tape recorders were also available for use of the students for these materials on cassette tapes.

   d. Shorthand dictation tests on tapes prepared by the teacher.

   e. Electric typewriters were available for the use of each student.

2. General Course Objectives

The following were the final speed development standards for Shorthand III on three-minute "takes" with 95% accuracy:

140 wpm = A
120 wpm = B
100 wpm = C

In addition to these requirements, every post-test in the sixteen instructional units was to be passed with at least 85% accuracy. Scores below this level would require a student to retake the test. These tests covered various shorthand theory principles, transcription points, and spelling. Five-minute transcription tests were administered with the following transcription speed requirements with ten or less errors:

40 wpm = A
35-39 = B
30-34 = C
25-29 = D

3. General Course Organization

Students were required to work independently through the lessons in their text using the five-lesson instructional units as guides. At least thirty minutes of each class period were to be spent by the students taking dictation from the multi-channel tape equipment at the speed at which they were working.

Periodically students could take "live" dictation from the teacher, take self-tests or post-tests from the units, or take three-minute dictation tests. Part of at least one day per week was spent on transcription timings in which students were to transcribe from their homework notes for five-minutes.

4. Checking of Work

Student's work was checked through the submission of completed unit work to the instructor and through the periodical reading or transcribing of homework notes. Self-tests and post-tests were returned to the teacher as completed. Satisfactory completion of a self-test permitted a student to proceed to the following post-test. Satisfactory completion of a post-test permitted a student to go to a new unit.

5. Administration of Tests

Unit self-tests and post-tests were requested from the teacher whenever a student was ready to take one. Three-minute dictations could be taken when a student was prepared for a given speed by using the teacher-made test tapes. At other times the teacher herself would dictate these tests to groups of students.

District 5
Blackhawk Technical Institute
Beloit and Janesville

TYPEWRITING I AND II (106-131, 106-331, 106-133, 106-333)

Schedule of Class Meetings: Students choose the hours at which they wish to work in the open typewriting laboratory. The lab is open from 7:30 a.m. to 4:30 p.m.

Schedule pattern for analysis: No. 4 (No scheduled classes; all work completed in an open laboratory at a time chosen by the student.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. AVT Introductory Typewriting by Wanda W. Roderick. Moorestown, New Jersey: Media Systems Corporation, 1971. (Excluding the Skill Building tapes which may accompany the text materials.)

   b. IBM Selectric Supplement to Introductory Typing. Moorestown, New Jersey: Media Systems Corp, 1971. (Four lessons)

   c. AVT Intermediate Typing by Wanda W. Roderick. Moorestown, New Jersey: Media Systems Corp., 1971. (Excluding the Skill Building tapes which may accompany the text materials.)

      All typewriting instruction with these materials was presented to students through the slide-tape media. These slide-tape presentations were correlated with the Introductory and Intermediate typewriting texts. The primary differences in these materials from the more traditional textbooks is that the explanations of typewriting problems are presented visually and aurally through the slide-tapes. The same information is not available in written or diagram form in the textbook.

   d. Faster Typing, 2nd Ed., by Hossfield and Nelson. Baltimore: The H. M. Rowe Company.

   e. 101 Typewriting Timed Writings with Selected Drills, 3rd Ed., by Thompson. Cincinnati: South-western Publishing Company.

f. In Beloit, four slide-tape carrells for use by both typewriting and calculating machine students; in Janesville, three slide-tape carrells for use by both typewriting and calculating machine students.

g. In Beloit, 25 manual and electric typewriters were available for student use in the AVT laboratory; in Janesville, 25 manual and electric typewriters were available for student use in the AVT lab.

h. Interval timers available for individual student use for timed writings.

2. General Course Objectives

Because the Janesville and the Beloit AVT laboratories were operated using the same basic course objectives and procedures, they will be combined for these descriptions. Any major differences between the two schools will be noted.

In Typewriting I the course objectives included the acquisition of basic typewriting skills and theory knowledge regarding the placement of typewritten material. Specific behavioral objectives were stated at the beginning of each of the 43 lessons. These lessons included a basic introduction to the key board and machine parts and progressed through units covering tabulations, proper word division, and various forms of business correspondence. The problems in these lessons were graded according to a point scale allowed a letter grade for each problem. Four theory tests were included which were to be passed with at least 80% accuracy. The fourth and final theory test was also part of the final examination which included a performance test.

During each nine weeks of the semester, 12 one-minute, error-free timed writings and 12 five-minute timed writings with five or less errors were to be handed in. The following were the standards by which they were graded:

1st Nine Weeks	2nd Nine Weeks
30 wpm = A	35 wpm = A
25-29 = B	30-34 = B
15-24 = C	25-29 = C
10-14 = D	15-24 = D

Typewriting II consisted of 40 more lessons to be completed in the student text. These lessons included special types of business correspondence, business forms, tabulation, manuscripts and rough drafts. The problems in these lessons were graded according to a point scale determined by the number of errors in

the material. This point scale allowed the assignment of a letter grade for each problem. The four theory tests which were included in the text were to be completed with a minimum of 80% accuracy. The seven production tests which accompany this text were not available in either of these two schools until late in the fall semester.

A final performance test was required, however, for the satisfactory completion of Typewriting II. The option was available to certain accounting and medical assistant majors to waive the typewriting requirements of their programs once they had attained a typing speed of 40 wpm with three or less errors. This permitted many students to complete the course without doing all of the lesson assignments.

Each nine-week quarter a student was to submit at least 12 five-minute timed writings with three errors or less. These were graded on the basis of the following grading schedule:

1st Nine Weeks	2nd Nine Weeks
40 wpm = A	45 wpm = A
35-39 = B	40-44 = B
30-34 = C	35-39 = C
25-29 = D	30-34 = D

3. General Course Organization

While students were given typewriting skill tests to determine their placement in Typewriting I or Typewriting II for those having had typewriting before, no pretest was used to place students at different levels within these two courses. All of the lessons in a given course were to be completed as part of the course requirements.

As a student entered the typewriting course, he was given an orientation to the AVT lab procedures and the use of the slide-tape carrell. Written materials were available outlining the purpose and the use of the lab.

In Beloit one teacher was assigned full-time to the AVT lab, including both typewriting and calculating machines. There were no laboratory assistants. The assistance of a work-study student was available to the lab instructor.

In Janesville, two teachers were assigned to the AVT lab including both typewriting and calculating machines. Each teacher was assigned to the lab for nine hrs. per week. No laboratory assistant was available at other times, although the help of a work-study student was available to the teacher for the correcting of papers.

Students were to proceed individually through the lessons in either the Introductory or Intermediate text. Teacher assistance was available during the hours when an instructor was in the lab. As a student was prepared for a theory test, these could be requested from the instructor. The Skill Building tapes which may accompany the texts were not available and drill work was to be done with the available interval timers.

The number of hours which a student spent in the lab were to be tabulated weekly on the daily record kept by the student. This record was kept in a weekly file in which the student entered the time at which he entered and left the lab each day. At the end of the week, hours were calculated by the student.

If a student completed a course early, he could leave the class or proceed to a more advanced typewriting course, if he were originally in Typewriting I. A student who had not completed all of the course requirements at the end of the semester could continue his work into the next.

4. Checking of Work

As problems were completed by the typewriting students in both Beloit and Janesville, materials were put either into the student's individual file folder (Beloit) or into an "In" basket for that particular course (Janesville). These papers were examined by the teacher and returned to the students in their files or in another "Out" basket. Preceding this evaluation of the work by the teacher, each student was to evaluate his own work on the basis of its general appearance and neatness using a standard form for this assessment. This form was adapted to each piece of work submitted.

Work returned to the student was assigned a letter grade by the teacher, together with any comments regarding possible revision and resubmission.

5. Administration of Tests

Timed writing tests to be collected and graded were administered at hours designated by the instructor. During these times the students in the lab met as a group and one-minute and five-minute timings were administered. Attendance at these sessions was not mandatory, but a student was to attend as many as necessary to meet the minimum skill requirements for the semester.

The theory tests were to be taken as a student requested one. These tests were either graded immediately by the teacher or returned the next day after having been checked. A minimum score of 80% was required on these tests before a student could proceed to the next lessons in his text.

District 8
Waukesha County Technical Institute
Waukesha

TYPEWRITING I AND II (106-131, 106-331, 106-133, 106-333) 3 credits each

Schedule of Class Meetings: One hour, twice during the week, students meet as a class with the instructor. The other three required hours of typewriting are released to be spent in the open lab at hours chosen by the student.

Schedule pattern for analysis: No. 2 (Some classes scheduled to meet at a designated time; some classes released for independent student work.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. AVT Introductory Typewriting by Wanda W. Roderick. Moorestown, New Jersey: Media Systems Corp., 1971.

   b. IBM Selectric Supplement to Introductory Typing. Moorestown, New Jersey: Media Systems Corp., 1971. (Four lessons)

   c. AVT Intermediate Typing by Wanda W. Roderick. Moorestown, New Jersey: Media System Corp., 1971. (For further description, see District 5)

   d. Faster Typing, 2nd Ed., by Hossfield and Nelson. Baltimore: H. M. Rowe Co.

   e. 101 Typewriting Timed Writings with Selected Drills, 2nd Ed., by Thompson. Cincinnati: South-western Publishing Co.

   f. Typing 75 - Advanced Kit, by Lloyd, Rowe, and Winger. New York: Gregg Division, McGraw-Hill Book Co., 1970. (To be used by a few Typewriting II students who had already purchased this particular textbook.)

   g. Electric and manual typewriters were available to students in the typewriting lab. There were 22 machines available in the lab plus five more in the slide-tape carrells.

h. Five slide-tape carrels available only to the typewriting students

i. Four cassette recorders available, in addition to the tape recorders in the carrells, for use with the skill building tapes which accompany the lessons in both Introductory and Intermediate Typewriting.

2. General Course Objectives

In Typewriting I the course objectives included the acquisition of basic typewriting skill and theory knowledge regarding the placement of typewritten material. Specific behavioral objectives were stated at the beginning of each of the 43 lessons in the text. These lessons included a basic introduction to the keyboard and machine parts and progressed through units covering tabulation, proper word division, and various forms of business correspondence. As these lesson problems were completed, they were reviewed by the instructor but not graded.

In Typewriting II a similar pattern of lessons and problems was presented, again with specific objectives stated before each lesson. These 40 lessons included specific types of business correspondence, business forms, tabulation, manuscripts and rough drafts. In both Typewriting I and II, self-tests were included at the end of the lessons to guide a student in assessing his satisfactory accomplishment of the lesson objectives.

Both Typewriting I and II contained four objective theory tests at certain points throughout the texts. These were to be completed with a minimum of 80% accuracy before a student could proceed to the next lesson. Typewriting II also included seven production tests throughout the text which were to be satisfactorily completed before proceeding to the next lesson.

Skill building tapes and typewriting drills books were to be used to build straight-copy typing skill. The following were the minimum skill standards for the semester for five-minute timings having five errors or less:

Typing I	Typing II
40 wpm = A	55 wpm = A
35-39 = B	50-54 = B
30-34 = C	45-49 = C
25-29 = D	40-44 = D

A final theory and production test were administered in both Typewriting I and II.

3. General Course Organization

Student placement in either Typewriting I or Typewriting II was determined on the basis of previous typing experience. Pretesting was not used to place students at a variety of levels within these courses, other than that which was possible informally with individual students as teachers recognized a need to omit certain lessons.

Of the five required hours of typewriting instruction per week, two of these were scheduled with a teacher. Three different teachers were responsible for designated groups of students. At times when the typing lab was not being used for a scheduled class, students could attend the open lab at hours of their choosing. Two assistants were also available in the AVT lab to help students as needed and to assist teachers in the checking of papers. During the week in the fall semester, typewriting instructors were scheduled in the AVT lab a total of 15 hours; during 16 hours a lab assistant was present; for 14 hours a week there was no lab assistant or teacher present in the open lab.

When a student entered the typewriting course, he was given basic oral and written instruction regarding the procedures for using the open lab and the lab equipment. He was then to proceed at his own pace through the assigned lessons in his text. A suggested timetable was posted for the completion of these lessons to encourage students to maintain a schedule which would permit them to finish by the end of the semester.

As a student worked on his lesson assignments, he had access to a printed solution to the problems. This would answer basic questions a student might have when a teacher or aide was not readily available for assistance. In addition to working on his assigned problems, a student could use his lab time to build his typing skill by using the Skill Building tapes or to take theory and production tests as he came to these points in his text.

A student was to record the hours which he spent in the lab by entering the beginning and ending lab hours on a time sheet. This was totaled weekly by the student.

If a student finished the course early, he could continue on to a more advanced course, if he were in Typewriting I, or he could leave the class. If he did not finish by the end of the semester, he would be permitted to continue into the next.

4. Checking of Work

As lessons were completed by the student, they were placed in the "In" basket for his particular instructor. These were then checked first by the lab assistants for their completeness

and then by the instructor. Grades were not assigned for these lesson assignments, but unsatisfactory work was returned for correction and resubmission. If a student had no corrections to make, his work was placed in his personal file. If he did have corrections to make, his work was returned in his instructor's "Out" basket. A student had access to his personal file at any time by asking the teacher or the lab assistant.

5. Administration of Tests

Timed writings to be collected and graded were administered during the two scheduled class meetings a week. The theory and production tests, however, were administered whenever a student reached one of these points in his textbook and requested this test from the teacher or lab assistant. These tests were administered and/or timed by either a teacher or lab assistant, but they were corrected by the teacher. When possible, these tests were checked immediately in the student's presence and reviewed with him personally. A score of less than 80% on a theory test or less than "C" level on a production test was to be retaken before a student could proceed to the next lesson.

District 11
Lakeshore Technical Institute
Sheboygan

TYPEWRITING I AND II (106-131, 106-331, 106-133, 106-333, 106-360, 106-362, 106-364)

Schedule of Class Meetings: No classes are scheduled; students attend the open lab at hours of their choosing. The lab is open from 7:45 a.m. to 4:30 p.m., Monday through Friday.

Schedule pattern for analysis (No scheduled classes; all work completed in an open laboratory at a time chosen by the student. No. 4)

Type of Individualized Instructional Model: No. 2 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. AVT Introductory Typewriting by Wanda W. Roderick. Moorestown, New Jersey: Media Systems Corp., 1971.

   b. IBM Selectric Supplement to Introductory Typing. Moorestown, New Jersey: Media Systems Corp., 1971. (Four lessons)

   c. AVT Intermediate Typing by Wanda W. Roderick. Moorestown, New Jersey: Media System Corp., 1971. (For further description, see District 5)

   d. Progressive Typewriting, Speed Practice by Kenneth J. Hansen, Third Ed., New York: Gregg Division, McGraw-Hill Book Co,1968.

   e. Electric typewriters available for all students. There were thirty typewriters in the AVT lab.

   f. Four slide-tape carrells to be used only by the typewriting students.

   g. 20 cassette tape recorders available for student use in addition to the tape recorders in the carrels. These were to be used with the Skill Building Tapes which accompany the text.

   h. Medical Typing Practice, 2nd Ed., by Root and Byers. New York: Gregg Division, McGraw-Hill Book Company, 1968. (To be used only by the medical typing students.)

2. General Course Objectives

In Typewriting I the course objectives included the acquisition of basic typewriting skill and theory knowledge regarding the placement of typewritten material. Specific behavioral objectives were stated at the beginning of each of the 43 lessons in the text. These lessons included a basic introduction to the keyboard and machine parts and progressed through units covering tabulation, proper word division, and various forms of business correspondence. As these lesson problems were completed, they were reviewed by the instructor but not graded.

In Typewriting II a similar pattern of lessons and problems was presented, again with specific objectives stated before each lesson. These 40 lessons included specific types of business correspondence, business forms tabulation, manuscripts and rough drafts. In both Typewriting I and II, self-tests were included at the end of the lessons to guide a student in assessing his satisfactory accomplishment of the lesson objectives.

Different course requirements were established for Typing I and Typing II, and the medical typing courses: Optometric Typing, Dental Typing, and Medical Typing. The medical typing courses and the programs for the Clerk-Typist and Business Machines students (one-year diploma programs) required that both the Introductory and Intermediate Typing textbook be completed within one semester.

Special course outlines were developed for the three medical typing courses and for the Typing I and Typing II courses based on the lessons in the AVT Introductory and Intermediate Typing. Portions of the lessons in these two texts were omitted for the medical typists, including certain theory and production tests. All lessons, theory tests, and production tests, however, were required of the students enrolled in either Typewriting I or Typewriting II. There was no differentiation between the course outlines for students in the one-or two-year programs for these courses.

All theory tests and production tests were to be completed with a minimum of 80%, or "C level" accuracy. If this level were not achieved, the test was retaken until this level was met. One day was required to elapse before any test could be retaken.

Basic straight-copy skill standards were established for the end of the fall semester for all the typewriting sections. All standards were based on five-minute timings containing five errors or less:

All three sections of medical typing: 60 wpm = A
50-59 wpm = B
40-49 wpm = C

Typewriting I:	45 wpm = A 40-44 wpm = B 30-39 wpm = C
Typewriting II:	55 wpm = A 50-54 wpm = B 40-49 wpm = C

3. General Course Organization

During the initial orientation to the typewriting courses, all students who had had typewriting before were administered a pretest. This test included the final theory test for AVT Introductory Typewriting, a five-minute timed writing, and a production test consisting of a letter to be typed within fifteen minutes. On the basis of these tests a student was permitted to waive an entire typing course, to begin at a point within a particular course other than the beginning, or to enroll in a more advanced course while making up specific deficiencies in the preceding typing course.

During the pretesting session, a basic orientation was also given with respect to the procedures to use in the open lab and the use of the equipment. Thereafter students were allowed to choose the time of their lab attendance. They were to record the number of hours which they spent in the lab by using a time clock to punch their weekly attendance card.

During the time in the lab a student could work on his assignments and use the instructional materials in the slide-tape carrels, practice on typewriting drill materials using the Skill Building Tapes, or he could request a typewriting theory or production test.

As a student completed the assignments within each lesson, he was allowed access to the printed solutions to these problems, which was at the teacher's desk. While reference to this key was not encouraged, it was intended that such reference be available for the checking of minor details regarding problem set-up.

A teacher or a lab assistant was present in the AVT lab at all times to assist students, with the exception of the lunch hour. The two typewriting instructors were assigned to specific students enrolled in the different sections of typewriting. The hours to which both of these teachers would be present in the lab were posted in the room to permit their students to adjust their typewriting times to those of their instructor.

If a student completed the requirements for a course early, he could enroll in a more advanced typewriting course, if he were in Typewriting I, or he could leave the class. If he did not

complete the course within one-semester, or 18 weeks, he would be permitted to re-register and continue. Students were permitted to enroll in a typing course at any time of the semester. Whenever a student enrolled, he was permitted 18 weeks in which to complete his course before being required to re-register.

4. Checking of Work

All assignments completed in the lessons were placed in an "In" basket for the teacher to which a student was assigned. These papers were checked first by the lab assistant and then by the instructor. Unsatisfactory work was returned for correction and resubmission.

All completed work was checked off as having been submitted (it was not graded) and was returned to the student in his instructor's "Out" basket. This work was then obtained by the student for his review and he then filed it in his personal file folder. Separate files were maintained for students' lesson work and students' tests. Students had free access only to those files containing their lesson work.

5. Administration of Tests

All timed writings to be graded were administered on days designated by the instructor. On these days timed writings were administered every hour on the hour. Students taking these tests used paper of a distinctive color.

Typewriting theory tests and production tests were taken as students reached these points in their text lessons and requested these tests from a teacher or the lab assistant. These tests were supervised by the teacher or lab assistant and, when possible, graded immediately by the instructor with the student. A grade of 80%, or "C level", was required for all tests. Tests below this level were retaken after at least one day by the student before he proceeded to a new lesson.

District 12
Fox Valley Technical Institute
Appleton

TYPEWRITING I AND II (106-340, 106-341, 106-128, 106-131, 106-343)
3 credits each

Schedule of Class Meetings: No classes are scheduled; students may attend the open typewriting laboratory at times of their own choosing. The lab is open from 7:30 a.m. until 10 p.m.

Schedule pattern for analysis: No. 4 (No scheduled classes; all work completed in an open laboratory at a time chosen by the student.)

Type of Individualized Instructional Model: No. 2 (Objective to develop student to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. AVT Introductory Typewriting by Wanda W. Roderick. Moorestown, New Jersey: Media Systems Corp., 1971.

   b. AVT Intermediate Typewriting by Wanda W. Roderick. Moorestown, New Jersey: Media System Corp., 1971. (For further description, see District 5)

   c. Faster Typing, 2nd Ed., by Hossfield and Nelson. Baltimore: H. M. Rowe Co.

   d. 101 Typewriting Timed Writings with Selected Drills, 2nd Ed., by Thompson. Cincinnati: South-Western Publishing Co.

   e. Electric typewriters were available to all students. There were 30 electric machines available in the typewriting portion of the open lab. Five other typewriters were available in the calculating machines section of the laboratory and could also be used by typewriting students when not in use for machine transcription.

   f. Eleven slide-tape carrells were available for both typewriting and calculating machine students. Five of the carrells were equipped with typewriters specifically for use with the typewriting slide-tapes. The remaining carrells contained calculating machines.

g. Approximately twelve cassette tape recorders were available upon check-out at a materials check-out desk for use by students with Skill Building tapes accompanying each typewriting text.

2. General Course Objectives

In Typewriting I the course objectives included the acquisition of basic typewriting skill and theory knowledge regarding the placement of typewritten material. Specific behavioral objectives were stated at the beginning of each of the 43 lessons in the text. These lessons included basic introduction to the keyboard and machine parts and progressed through units covering tabulation, proper word division, and various forms of business correspondence. After these lesson problems were completed, they were reviewed by the instructor and scored according to a point scale.

In Typewriting II, a similar pattern of lessons and problems was presented, again with specific objectives stated before each lesson. These 40 lessons included specific types of business correspondence, business forms, tabulation, manuscripts and rough drafts. In both Typewriting I and II, self-tests were included at the end of the lessons to guide a student in assessing his satisfactory completion of the lesson objectives.

Both the Introductory and Intermediate typewriting texts contained four theory tests at certain points through the texts. These were to be completed with a minimum of 80% accuracy before a student could proceed to the next lesson. Intermediate typewriting, or Typewriting II, also included seven production tests through the text which were to be satisfactorily completed before proceeding to the next lesson.

Skill Building tapes and typewriting drill books were to be used to build straight-copy typing skill. The following were the minimum skill standards for the semester. For Typewriting I, three-minute timed writings were used; for Typewriting II, five-minute timed writings. In both courses one error per minute was allowed. For each additional error, two words were to be deducted from the gross words per minute.

Typing I	Typing II
36 wpm = A	55 wpm = A
31-35 wpm = B	47-54 wpm = B
26-30 wpm = C	40-46 wpm = C
21-25 wpm = D	32-39 wpm = D

A final objective theory test was administered in both Typewriting I and II. A final production test was administered as a last lesson in Typewriting II.

3. General Course Organization

During the initial orientation to the typewriting courses and as new students entered the typewriting lab, a pretest was administered to those students who had had previous typewriting instruction. This pretest was the unit theory test accompanying AVT Introductory Typing. Scores on this test were used to identify the lesson in Typewriting I at which a student should begin, or it could permit him to waive the beginning course altogether.

Every enrolling student was issued a student authorization sheet in addition to the general course informational sheets describing the laboratory procedures. This authorization sheet was to be used in checking out slide-tape materials for each lesson and for recording by the instructor of a student's satisfactory completion of each lesson. A duplicate of this form was also kept by the teacher.

A student was to proceed through his assigned lessons at a pace appropriate to his needs. Whenever he entered the lab, the amount of time spent on typewriting was to be accumulated through the use of a time clock. A student's time in the lab could be spent viewing the AVT slide-tape lessons, typing the assigned problems in each lesson, or working on straight-copy typing speed through the use of Skill Building tapes. Slide-tapes and cassette recorders were checked out and returned to a central check-out desk.

As a student completed the problem in a lesson, these were to be checked immediately by one of the teachers in the lab. Two typewriting teachers were assigned to the lab at all times to assist students and to check their work. One lab assistant and work-study student were also available to distribute materials, maintain student files, and aid in the utilization of the lab equipment. To supervise the use of the laboratory facilities and materials, one of the instructors was designated as the "lead instructor." This person was responsible for maintaining consistency in the laboratory procedures and in the course requirements established for the students.

If a student completed the course before the end of the semester he could enroll in a more advanced typewriting course or he could leave the class early. If a student did not complete the requirements within one semester, he was granted one additional semester in which to complete the course without re-enrollment. At the end of this second semester, a student who had not completed the course would be required to re-register.

4. Checking of Work

As a student completed the assignments in a given lesson, these were to be checked immediately by one of the two instructors in the lab. A student would sit at the instructor's desk and discuss any aspects of the lesson needing further attention. Major errors would require redoing of lessons. All completed assignments were assigned point scores based on their final quality and these points were accumulated and included in the final course grade.

When a student had satisfactorily completed a lesson, the teacher's signature on his "authorization form" would permit him to check out the slide-tape materials necessary for the succeeding lesson. All completed work was filed in each student's personal assignment file by the lab assistant.

5. Administration of Tests

As a student reached a point in his text lessons requiring either a theory or a production typing test, he asked one of the instructors to administer the test to him. These tests were graded immediately with the student and then placed in a separate student test file.

Timed writings could be taken upon request to the typewriting instructor or they could be taken using the Skill Building tapes which accompany the text. In each lesson, one timing taken with the Skill Building tapes was recorded on a student's record form. At the end of the semester, the three best timings were used to establish this portion of the course grade.

District 4
Madison Area Technical College
Madison

TYPEWRITING II - LEGAL (106-133) 3 credits per semester

Schedule of Class Meetings: One hour five days a week for the complete year

Schedule pattern used for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 1 (Objective to develop student to a designated criteria by altering the duration of instruction. Fixed instructional track; no initial placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Production Typing, A Collegiate Course, 3rd Ed., by Bendixen and Carter. Cincinnati: South-western Publishing Co., 1967.

   b. Quick Forms Typing by Beldon and Malepa. New York: Gregg Division, McGraw-Hill Book Co., 1968.

   c. The Art of Machine Transcription. New York: International Business Machines, 1970.

   d. Sixteen instructional units prepared by the teacher. Each unit consisted of basic explanatory material regarding the producing typewriting activity to be learned. Several units included pretests on this material to be used by the student and the teacher to identify areas of particular strength or weakness.

      Several typing activities were assigned in each unit to be completed by each student at his own pace. A production post-test and an objective post-test followed these independent student activities. While all units had a production post-test, objective post-tests were included only for those units in which selected content knowledge could be appropriately tested.

   e. Several selected secretarial and legal secretarial handbooks were available in the classroom for student use.

2. General Course Objectives

The following are the titles of the sixteen instructional units prepared by the teacher. These units utilized the published texts which the students were to purchase for the course.

Unit 1 -- Correspondence Review
Unit 2 -- Introduction to Machine Transcription
Unit 3 -- Manuscript Review
Unit 4 -- Introduction to Legal Documents
Unit 5 -- Tabulation Review
Unit 6 -- Civil Procedure Documents
Unit 7 -- Criminal Procedure Documents
Unit 8 -- Business Forms Review
Unit 9 -- Probate Procedure Papers
Unit 10 -- Typing Legal Citations
Unit 11 -- Real Estate Procedure Papers
Unit 12 -- Corporation Documents
Unit 13 -- Divorce Procedure Documents
Unit 14 -- Transcription of a Court Reporter's Dictation (Optional)
Unit 15 -- Preparing Duplicating Masters (Optional)
Unit 16 -- Operating the Executive Typewriter (Optional)

During the second semester a 17th unit was added in the form of two days of special individual instruction on the Magnetic Tape Selectric Typewriter.

The standards to be applied in grading the course accomplishments were as follows:

LEGAL TYPEWRITING
Grading Scales and Procedures

Straight Copy Timings: 5-minute, gross words per minute, 3-error maximum, three timings per quarter within error limit to qualify for grade.

1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Grade
50-up	55-up	60-up	65-up	A
45-49	50-54	55-59	60-64	B
35-44	40-49	45-54	50-59	C
30-34	35-39	40-44	45-49	D

Number-Symbol Copy Timings: 3-minute, gross words per minute, 3 error maximum, one qualifying timing for each unit of work.

90-100 percent of straight copy rate = A
80- 89 percent of straight copy rate = B
70- 79 percent of straight copy rate = C
60- 69 percent of straight copy rate = D

Straight copy rate determined by averaging last four straight copy timing speeds on the first day of a new production unit.

Production Copy Timings: 5-minute, gross words per minute, 5-error maximum, one qualifying timing for each unit of work. Type from arranged copy or copy with minor corrections, all machine adjustments completed before timing begins. One qualifying timing for each unit of work.

"Production Word Counted" copy will be used. This method weights machine operations other than key stroking so that they are converted to standard words.

Production copy timing speed will be subtracted from straight copy timing speed. The difference will be graded as follows:

Difference of 0, 1, or 2 = A
Difference of 3, 4, or 5 = B
Difference of 6, 7, or 8 = C
Difference of 9, 10, or 11 = D

Straight copy rate determined by averaging last four straight copy timing speeds on the first day of a new production unit.

Creative Timed Writings: Students type for 5 minutes on a 60- or 70-space line (for ease in computing speed) in response to a case problem, controversial idea, news item, or legal situation. Errors disregarded. Strikeovers or x'ing out allowed but not encouraged (because it slows down composition). Speed only will be graded as follows:

90-100 percent of straight copy rate = A
80- 89 percent of straight copy rate = B
70- 79 percent of straight copy rate = C
60- 69 percent of straight copy rate = D

Usable Production Timings: A time limit will be set (such as 30 or 45 minutes) or the length of time used to complete a job or jobs will be recorded. Student works from unarranged typewritten, corrected, or handwritten copy, or from transcribing machine belt. Appropriate carbon copies and envelopes are to be made and errors are to be corrected. Production word count will be used. Speed will be graded as follows:

30-more words per minute = A
25-29 words per minute = B
15-24 words per minute = C
10-14 words per minute = D

Usability (mailability) of each page will be evaluated and graded as follows:

4 points or A for any page which meets the ideal usage requirements on all ten or all applicable categories. (See "Is It Usable?")

3 points or B for any page which deviates from the ideal but would not have to be changed or corrected to be usable. Any page which could be made usable by one simple addition (comma) or subtraction (erase small pencil or finger mark) will also receive 3 points.

2 points or C for any page which would have to be returned to the typist for any one of the following:

(a) Two or more additions or subtractions;

(b) not more than two corrections which require erasing and retyping of a few letters or a word;

(c) addition of a major omission such as carbon copy or jurat. The page will also receive 2 points if arrangement on the page is poor, second-choice spelling is used or barely acceptable erasures, punctuation, grammar, number expressions, word division, capitalization or context substitutions are used. In such cases no corrections would be required but the page would be used only if a deadline were so near that it could not be retyped.

1 point or D for any departure which would make the page usable only under severely limited circumstances or with many additional corrections, with or without erasing.

0 points or F for any page which would have to be retyped in any circumstances to be usable.

Units Completed: At the end of the first semester and at the end of the year, a grade will be assigned for the number of units completed using the following scale:

Units Completed

First Semester	End of Year	Grade
8	14	A
7	13	B
6	12	C
5	11	D

Class time available during the second semester will be shortened by three weeks as students will be on work experience affiliation during that time.

Objective Tests: Two grading scales will be used for objective tests.

93-100 percent = A
85- 92 percent = B
77- 84 percent = C
70- 76 percent = D

Spelling, word division, zip code, abbreviations and similar tests will use the following scale:

99-100 percent = A
96- 98 percent = B
93- 95 percent = C
90- 92 percent = D

Report Card Grades: To arrive at the report card grade, the following weights will be assigned to the various activities described above:

	First Semester	Second Semester
Speed	25%	20%
Straight Copy Timings		
Number-Symbol Copy Timings		
Production Copy Timings		
Creative Timings		
Usable Production	75%	80%
Usable Production Timings		
Units Completed		
Objective Tests		

3. General Course Organization

Three days of each week; Monday, Wednesday and Friday; were designated as production unit days. On these days a student proceeded independently through the particular instructional unit on which he was working. Assistance was available from the teacher as needed. Pretests or post-tests could be taken at this time. Before a student began work on a new unit, a form was completed stating the unit on which the student was working, the skill requirement in that unit and the grade in that unit for which a student desired to work.

The remaining two days a week, Tuesday and Thursday, were skill-building activity days in which the class worked together as a group on selected timed writings. Spelling tests were also administered on these days through the dictation and typing of word lists. These group meetings were also used by the instructor for any general instructions comparing legal typewriting which she wished to present to the entire class.

During the last three weeks of the semester the students were not in their regular class but were working on "affiliation appointments" in law firms in the city.

Because no provision was possible for a student to complete the course in more than the two semesters available, a student's grade was to be affected by the number of units which he completed. It was possible, however, for a student to complete the course requirements early.

4. Checking of Work

As assigned problems within the units were completed, they were submitted to the instructor for grading. Since all work was to meet a "mailability" standard, work with errors was returned to the students for correction. A carbon copy of this work was kept by the teacher for comparison with the corrected and resubmitted problems. Students were not to proceed with new assignments until corrections were made on the previous work.

5. Administration of Tests

Unit pretests and post-tests could be taken whenever a student was prepared to take one. A student was timed individually on these. If a student performed poorly on a timed production typing test, extra problems were assigned of a similar type, if necessary, and the test was retaken at a later time. The same grading standards applied on a test retake as on the original test and the grade on the second test was considered the grade received.

District 9
Milwaukee Area Technical College
Milwaukee

TYPEWRITING I (106-331)

Schedule of Class Meetings: One hour, five days per week

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 5 (Objective to develop a student to individually selected criteria and to use of different instructional sequences for each. Pretesting and placement are incorporated into the construction of the instructional sequence.)

Course Materials and Objectives:

1. Text and Other Instructional Materials

   a. Gregg Typing 75 - Basic Kit, by Lloyd, Rowe and Winger. New York: Gregg Division, McGraw-Hill Book Co., 1970. (including correlated workbook)

   b. Instructional Records for Typing 75 Basic, 30 tapes correlated with typewriting textbook. One tape recorder available in the classroom for individual student use of these tapes.

   c. Manual typewriters were available to each student. There are 25 typewriters in the class.

   d. Mechanical timers were available in the class for individual use by students.

2. General Course Objectives

   The primary source of instructional objectives were the following:

   a. Those designated by the teacher as she worked individually each week with the students

   b. Those designated in the textbook lessons, which were to be used as guides by the students when proceeding from one lesson to the next.

During the semester a student was to attempt to complete lessons 1-75 in the textbook. However, the specific assignments were made personally with each student according to his previous course accomplishments. These assignments were initially based on the student's work on the typewriting pretest. This pretest was the test published with the course textbook which permitted the identification of specific textbook lessons which coincided with demonstrated weaknesses on the pretest.

Instructional tapes correlated with the textbook were also available for the beginning lessons for those students who chose to use this medium. While at times some students were grouped together for instruction on a similar typewriting topic, a large portion of class time was spent by the teacher working individually with the students as they proceeded through their own lesson sequences. Every week all students in the class received an assignment of the lessons which they were to complete. Deadlines were suggested for the completion of these assignments by each student.

Periodically the entire class was brought together as a group for drill activities. During these activities the students were using different materials depending upon their progress through the course text.

A student who completed the course early was able to leave the class or continue on to a more advanced typewriting course. It was anticipated that those who did not complete the course within one semester would continue into the next. The following were the basic skill requirements for satisfactory completion of Typewriting I:

Five Minute Timings With A
Four Error Limit

45-up wpm = A
40-44 wpm = B
30-39 wpm = C
25-29 wpm = D

The Scoreboard Chart accompanying the course textbook was used for grading the centering problems, letters, tables, manuscripts and forms.

3. General Organization of the Course

As a student entered the course on any Monday he was introduced by the teacher to the basic course procedures. If he were not a true beginner in typewriting, he was given the typewriting pretest.

Those students who were true beginners were initially grouped together by the teacher and instructed through the basic keyboard.

4. Checking of Work

As lessons were completed by students, they were submitted to the teacher for checking. Where possible, this checking was done individually with the student as he worked on the lesson material. These textbook problems were to be evaluated according to the "scoreboard chart" provided in the course textbook materials. As a student completed a lesson satisfactorily, he was permitted to move on to new materials. Supplementary typewriting materials were available for use by those students as it was judged necessary by the teacher.

5. Administration of Tests

Unit tests, which accompanied the typewriting textbook, were administered as it was judged by the teacher that a student was ready for the test. Both the production tests and the five-minute timed writing tests were administered individually to students ready for them. The course grade was determined primarily by the skill level attained (75%) and secondly by the production tests and lesson work.

District 10
Moraine Park Technical Institute
Fond du Lac

TYPEWRITING I AND II (106-131, 106-331, 106-333)

Schedule of Class Meetings: One hour per day, five days per week

Schedule pattern for analysis: No. 3 (All classes scheduled to meet at a designated time; laboratory facilities available for extra work in addition to the scheduled class.)

Students were permitted to use any of the typewriting rooms to work on their lesson assignments outside of the regular class meeting time.

Type of Individualized Instructional Model: No. 2 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Gregg Typing 75 - Basic and Advanced Kits, by Lloyd, Rowe, and Winger. New York: Gregg Division, McGraw-Hill Book Co., 1970. (Including correlated workbook; for use by Typewriting I and II, 106-331 and 106-333)

   b. College Typewriting, 7th Ed., by Lessenberry, Wanous, and Duncan. Cincinnati; South-Western Publishing Co., 1965. (Including correlated workbook; used by Typewriting I, 106-131)

   c. AVT Introductory Typing by Wanda W. Roderick. Morrestown, New Jersey: Media Systems Corporation, 1971. (Used by selected beginning typewriting students.)

   d. Timed-Writing Tape which ran continuously throughout the class hour. This tape was a series of five-minute timed writings. Each minute was announced by the speaker on the tape up to five minutes. It was to be used for any problems within a lesson which the textbook instructions designated should be timed.

e. Electric typewriters were available for student use. There were 24 machines available.

2. General Course Objectives

On the basis of the pretesting and placement at the beginning of the course, four sequences of instruction and lesson assignments were established. Timed writing skill standards were established for each of these four groups. A separate grade was assigned both for speed and accuracy on these five-minute timed writings. The following were the standards for the four groups identified as A, B, C, and D.

GROUP	Nine Weeks		Semester	
A	30+	A	45+	A
	25-29	B	40-44	B
	20-24	C	35-39	C
	15-19	D	30-34	D
	-24	F	-29	F
B	45+	A	50+	A
	40-44	B	45-49	B
	35-39	C	35-44	C
	30-34	D	30-34	D
	-29	F	-29	F
C	50+	A	55+	A
	45-49	B	50-54	B
	40-44	C	45-49	C
	35-39	D	40-44	D
	-34	F	-39	F
D	55+	A	60+	A
	50-54	B	55-59	B
	45-49	C	47-54	C
	40-44	D	42-46	D
	-39	F	-41	F

ERROR LIMIT	
0-1	A
2-3	B
4-5	C
6-7	D
8--	F

Each of the four groups was required to complete a minimum of 75 lessons in the typewriting textbook. The specific sequence of 75 lessons varied, however, depending upon a student's score on the pretest. This pretest accompanied the text used in the course and permitted the identification of those parts of the text at which a student who had already had previous typewriting instruction should begin.

For Group A these lessons in the Gregg 75 Basic Kit were lessons 1-75. These students in this group had had typewriting before and were not receiving their initial keyboard instruction individually. Students who had not had typewriting before were instructed to begin typing in the AVT Introductory Typewriting text. This system has already been described as that used in Districts 5 and 8.

The students placed in Group B were required to complete lessons 26-100 in the Gregg Typing 75 Basic and Advanced Kits.

The students placed in Group C were required to complete lessons 51-125 in the Gregg Typing 75 Basic and Advanced Kits.

The students in Group D were required to complete lessons 86-150 in the Gregg Typing 75 Advanced Kit. This group of students was identified as being officially in Typewriting II.

The students registered for the technical level Typewriting I, 106-131, followed a similar sequence of lessons in the South-Western typewriting textbook. Because their number was much smaller, more individual assignment of specific lessons was possible.

All students received a mimeographed sheet listing the lesson requirements for their group and the date each lesson was due in order for a student to stay on schedule and complete the course by the end of the semester.

3. General Course Organization

The first sessions of the semester were devoted to pretesting of all students and the identification of their appropriate placement group. After this each student was to proceed at his own pace through his assigned lessons. The teacher was available at all times to provide any extra assistance as needed or to administer tests.

On Friday of each week the class spent the first portion of the hour on group drill work and the administration of five-minute timed writings which were to be collected and recorded. All other timed drill work was done independently by the students as they proceeded through their lesson assignments. As the written instruction in the text asked that drill or problem work be timed, the tape which was running continuously in the classroom was to be used for the timing. A student could listen to the calling of the minute intervals on this tape without asking that a clock be set for him or setting one himself.

Because no provision of extended enrollment was possible for students who did not complete the course within one semester, it was not possible for a student to receive a grade of "incomplete". While a student could finish the course early, his grade would be lowered by his failure to complete the minimum course requirements.

4. Checking of Work

Each student organized his completed work within a file folder each day. These folders were collected at the end of the day by the instructor and the contents checked. If work were not satisfactory, it was asked to be corrected and resubmitted.

Since each student using the Gregg Typing Kit had access to a "Proofguide" illustrating the correct placement of any problems, it was possible for him to check his own work before submitting it through his personal completed-work folder. These lessons were not graded, but were checked as having been completed.

5. Administration of Tests

Typewriting production and objective tests were to be taken by students whenever they came to a point in their lesson assignment at which a test was designated. Both these production and objective tests were available to each student in his textbook before they were to be taken. The test was timed by the instructor and graded according to the scale provided in the textbook. The production tests counted 30% of the grade in the course.

Five-minute timed writings which were to be graded were administered to the class as a whole one day each week. These timed writings contributed 40% to the final course grade, and the three highest timed writings were used for this purpose.

The remaining 30% of a student's grade was based on the number of lessons which he completed altogether of the 75 required and his general course attitude.

District 11
Lakeshore Technical Institute
Manitowoc

TYPEWRITING I, II, AND III (106-131, 106-331, 106-133, 106-333, 106-135, 106-335)

Schedule of Class Meetings: Students attend the open typewriting laboratory at hours of their choosing. The lab was open from 7:30 a.m. to 4:30 p.m.

Schedule pattern for analysis: No. 4 (No classes scheduled; all work completed in an open laboratory at a time chosen by the student.)

Type of Individualized Instructional Model: No. 3 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels. Integrated remedial adjuncts to a fixed "main track" instructional sequence.)

This model designation was chosen primarily because of the provision in the Typewriting III course for the checking of the "Communication Aids" in the typewriting textbook. As punctuation errors were made on these typewriting exercises, a cross referenced guide was available to a "punctuation rules summary" which permitted a student to analyze his own errors and review before attempting the exercises a second time.

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. College Typewriting, 8th Ed., by Lessenberry, Wanous, and Duncan. Cincinnati: South-Western Publishing Co., 1969. (Including the correlated workbook.)

   b. Instructional Tapes, Lessons 1-25 of the course textbook.

   c. Interval timers available for individual student use.

   d. Electric typewriters available for all students. There were 25 typewriters available in the typewriting section of the open lab. Fifteen other electric typewriters were also available to the typewriting students in the shorthand portion of the lab and could be used when not being used for shorthand transcription.

2. General Course Objectives

The course grades in all three levels of typewriting were based on straight-copy typewriting skill, grades on both objective and production typewriting tests, and the daily problems typed within each lesson. The point scales established for all of these areas have not been presented here. The following are the skill standards established for straight-copy timings at all three levels:

Typewriting I: Three-minute timings using the fifth error cut-off method. A minimum of three timings were required at a given grade level.

Words Per Minute	Grade
41-45	A
36-40	B
31-35	C
26-30	D

Typewriting II: Five-minute timings using the fifth error cut-off method. A minimum of three timings were required at a given grade level.

Words Per Minute	Grade
51-55	A
46-50	B
41-45	C
36-40	D

Typewriting III: Five-minute timings using the fifth error cut-off method. A minimum of three timings were required at a given grade level.

Words Per Minute	Grade
60	A
55-59	B
45-54	C

Students enrolled in Typewriting I were required to complete the first 75 lessons of the typing text within one semester. Students in Typewriting II were assigned lessons 76-150. Typewriting III required the completion of lessons 151-225. The specific directions to follow when completing these lessons were available to the students in the form of assignment sheets.

Included in these sheets were complete explanations of the grading procedures to be used for the problems, the timed writings, and the tests.

In Typewriting III these assignment sheets were most completely developed by the course instructor. These consisted of unit packages for sections of ten lessons each. These packets included the specific objectives for each set of lessons, the procedure to be followed in completing the required problems, and grading scale for that particular set of assignments. The "Communications Aids" assignments in this course was supplemented by a cross referenced guide to the type of punctuation errors which could be made on each set of exercises. This self-checking and reviewing devise was to be used whenever a student could not complete these particular sentences with at least 80% accuracy.

3. General Course Organization

During the initial course orientation, students were permitted a period of time in which they could take typewriting pretests and be allowed to waive certain portions of the course. On the basis of these pretests, which were tests which accompanied the textbook, a student could be placed at the level in the text appropriate to his background. This could mean that a student would be reviewing the content of a previous typewriting course, as Typewriting I, while being officially enrolled in Typewriting II. Considerable flexibility was possible in the assignments required of students within the three course levels.

As students work independently through the assigned course lessons, the course instructor or a laboratory assistant was always available for extra aid. During the time which a student chose to spend in the open lab, he could work on drill activities using the available interval timers, use the typewriting instructional tapes if he were a beginning typist, request typewriting tests from one of the instructors, or work at his own pace on the assigned problems in the text.

If a student completed a course early, he could leave the course or enroll in the next typewriting course. Those students who were enrolled in the one-year diploma programs were required to complete two of the typewriting courses within one semester. If a student did not complete a course at the regular end of the semester, he would continue his work into the next.

4. Checking of Work

In addition to the observation of the students' work as they completed problems at their typewriters, all completed work was submitted to the instructor for grading. These completed

lessons were placed in an "In" basket. Graded problems were returned to students in an "Out" basket with any notes for corrections, resubmission, or requesting the special assistance of the instructor.

5. Administration of Tests

Timed writings which were to be graded, objective tests, and all production typewriting tests were administered by the instructor or laboratory assistant at the request of the student. These tests were individually timed. These tests were graded either immediately with the student or returned personally to the student when they were graded. Unsatisfactory tests according to the grading scale used were retaken after any necessary review.

District 15
North Central Technical Institute
Wausau

TYPEWRITING FOR PRINTERS (106-320) 2 credits

Schedule of Class Meetings: Four hours per week, two hours on one day and one hour on two other days

Schedule pattern for analysis: No. 1 (All classes scheduled to meet at a designated time.)

Type of Individualized Instructional Model: No. 2 (Objective to develop students to designated criteria by altering the duration of instruction. Fixed instructional track; initial pretesting and placement at a variety of levels.)

Course Materials and Objectives

1. Text and Other Instructional Materials

   a. Typing 75 - Basic Kit by Lloyd, Rowe and Winger. New York: Gregg Division, McGraw-Hill Book Co., 1970.

   b. Teacher-prepared transparencies of selected problem solutions.

   c. Electric typewriters were available for all students.

   d. Interval timers to be used by students for timings and drill work.

   e. Typing Drills for Speed and Accuracy, 3rd Ed., by Rowe and Etier. New York: Gregg Division, McGraw-Hill Book Co., 1966.

2. General Course Objectives

   The skill requirements for the completion of the beginning typewriting were adjusted for the three groups which were organized within the class. These differences affected both the scoring of the unit production tests and the straight-copy speed requirements for the three groups at nine weeks and at the end of the semester.

	Nine Weeks	Semester
Group I	25 wpm = A	30 wpm = A
(Beginning, no previous typing)	18-24 wpm = B	23-29 wpm = B
	11-17 wpm = C	16-22 wpm = C
	Two-minute test	Three-minute test
Group II	35 wpm = A	40 wpm = A
(15-30 initial GWAM)	28-34 wpm = B	33-39 wpm = B
	20-29 wpm = C	25-32 wpm = C
	Three-minute test	Five-minute test
Group III	44 wpm = A	49 wpm = A
(Above 30 GWAM initially)	37-43 wpm = B	42-48 wpm = B
	29-36 wpm = C	34-41 wpm = C
	Five-minute test	Five-minute test

All students were expected to complete as much of the 75 lessons in the text as was possible for them within one semester. No provision could be made for extending work beyond the one semester allowed for the printing students for whom this course was designed. The primary variation for the three groups was in the amount of drill work required, and the grading scales for both production and straight-copy work. During the last nine weeks of the semester, one day per week was devoted to learning the IBM Composer. This was taught to the class of printing students as a group, as only one Composer was available.

3. General Course Organization

During the initial introduction to the course, all students who had had typewriting before were administered the pretest accompanying the course text. Placement within the three groups within the course was determined primarily by gross typewriting speed. Each group received an instruction sheet outlining the amount of drill work to be done within the textbook lessons and the grading standards to be used on the unit tests.

At various times the separate student groups or the entire class was brought together for group drill activity. Group I was taught entirely as a group until they had learned the typewriting keyboard.

The majority of the class time was spent by students working at their own pace through the textbook lessons. The teacher was available at all times for extra individual assistance. In addition to this aid, students had model solutions to the

textbook problems in the form of "Proofguides" in the typewriting textbook. Transparencies prepared by the teacher were also available outlining the solution to selected problems in more detail for those who needed this aid.

If a student completed the course early, he was permitted to leave the class. No provision was available for continuing the course beyond the one semester allowed in the curriculum of the printing students.

4. Checking of Work

In addition to the time spent daily with the individual students, all course work was collected one day a week in student folders. This was handed back the following Monday with any directions for corrections and resubmission.

5. Administration of Tests

Unit tests in the typewriting textbook were administered to students at their request. These were individually timed for each student. When every student had completed a test these were reviewed with the students as a small group. If one student was particularly ahead or behind others in a group, his test was reviewed immediately.

Straight-copy timed writing tests were administered to the students as a group during the regular drill activities. An individual record was kept of a student's speed achievement.

APPENDIX B

QUESTIONNAIRE

PREVIOUS BUSINESS COURSES TAKEN IN ANY SCHOOL

Course Name	Place	Date	Course Grade

(Use Another Plain Sheet Of Paper , If Necessary.)

HOW MANY DIFFERENT COURSES Are You NOW Taking? _____.

HOW MANY HOURS PER WEEK Are You SCHEDULED To Attend Classes This Semester? _____.

CURRENT EMPLOYMENT

Name of Employer and Location _____

Type of Work Done _____ Number of Hours Worked Per Week _____

PREVIOUS WORK EXPERIENCE

Name of Employer and Location	Type of Work Done	Length of Time Employed

WHY ARE YOU TAKING THIS COURSE? (If more than one reason applies, mark your first reason "1", your second reason "2",etc.)

____ In order to get a job as soon as possible.
____ This course would help me to do more kinds of work on my present job.
____ To be able to advance or be promoted in my present job.
____ General interest in this subject.
____ This course is required as a part of the curriculum in which I am enrolled.
____ This course is an elective I've chosen to obtain credits required in the curriculum in which I am enrolled.
____ A friend was planning to take the course, so we are taking it together.

____ OTHER _____
(Please Specify)

The University of Wisconsin
1971-72 (Proj. No. 19-008-151-222)

Wisconsin Board of Vocational,
Technical and Adult Education

STUDENT PERSONAL INFORMATION

Individualized Instruction Research Project

STUDENT'S NAME _____ AGE ____

SCHOOL _____

COURSE NAME _____ COURSE NUMBER _____

TEACHER'S NAME _____ CLASS HOURS/WEEK _____

STUDENT'S ADDRESS _____
(Present)

PERMANENT OR PREVIOUS
HOME ADDRESS _____

MARITAL STATUS _____ NO. of CHILDREN _____ SEX _____

MILITARY SERVICE _____
(Which Service and Dates)

Are You Now Using the G.I. Bill to Go to School? _____ Yes _____ No

MAJOR COURSE OF STUDY _____
(For example, Clerk Typist, or Fashion Merchandising)

Please Check the TYPE OF PROGRAM in Which You are Enrolled:

_____ Two-Year Associate Degree _____ One-Year Vocational Diploma

_____ Two-Year Vocational Diploma _____ Other (Please Specify)
_____

CURRENT SEMESTER OF ENROLLMENT in the ABOVE PROGRAM 1 2 3 4 5 6
(Circle One)

HOW MANY SEMESTERS Have You Attended THIS SCHOOL? 1 2 3 4 5 6 Other ____
(Circle One)

PREVIOUS EDUCATION

High School _____
(Name and Location)

Date of Graduation (Or Highest Grade Completed) _____

OTHER INSTITUTIONS ATTENDED SINCE HIGH SCHOOL

Name and Location	Dates
_____	_____
_____	_____
_____	_____

APPENDIX C

INTRODUCTION
CRITICAL INCIDENT INTERVIEW

Introductory Format
CRITICAL INCIDENT INTERVIEW
Student

You are no doubt well aware that your (Subject) course has been organized somewhat differently from the class procedures with which you may have had the most experience in other courses. You have been encouraged to work more independently, or on your own, than with your class as a group.

My objective in spending time in your class and in talking with you now is to determine those features of this more individualized course operation which seem to work best or which work least well in helping you to (general objective of the course). There are several technical institutes in other parts of the state which are considering changing to this type of course organization, and your experiences in and reactions to this course will be very important in assisting other schools.

As a student, your perspective is of considerable value in assessing whether this type of course arrangement makes a difference in how well or how rapidly you are able to (general objective of the course). Since this course has been organized with more flexibility to help students to do well, I am very much interested in whether you think it does this. I would like to make clear, however, that the information which you give me is considered confidential, and in none of the reports which are made will you be identified by name.

My particular interest now is in those aspects of this course which you consider to be most helpful or least helpful in learning (subject). In order for your opinions to be useful in assessing the success of this course for you, however, I would like you to describe to me some of your experiences in this class which you consider to be illustrations of procedures or circumstances which have been very effective in helping you--or, on the other hand, experiences which you consider have made it difficult for you to (general objective of the course). I would like you to associate your opinions with specific events which have happened to you to make you feel the way you do.

In order to make it easier for you to recall particular incidents which you feel are important, I have four questions which you may consider:

1. What course procedures, requirements, or circumstances were involved in or related to this event?
2. What did you do under these circumstances?
3. What happened when you did this?
4. Why do you think this was an effective or an ineffective experience in helping you in this class?

Do you have any questions about what I am asking you to do?

Introductory Format
CRITICAL INCIDENT INTERVIEW
Teacher

I have spent most of my time thus far becoming familiar with the operation of this course, and I realize to some extent already those features which you consider to be most desirable or important in causing the course to operate effectively for the students. I would, however, like now to obtain from you a different type of information which can be used to make comparisons across a number of different (subject) courses in singling out aspects which are particularly necessary for successful individualized operation. Or, on the other hand, it would be especially valuable to know what type of situations should be avoided in implementing an individualized course as you feel it should operate. As with any of the impressions which you have already expressed to me, the information that you can give me now would be considered confidential and would not be associated with you personally in any of the reports of this project.

The kind of information I would like to obtain is of a type which would link your opinions directly with specific, observable events which have occurred in association with any facit of this class. In using what is called the Critical Incident Technique to permit this kind of evaluation, I would like you to select several occurrences you have observed this semester which illustrate any features of this course that you consider of key importance in causing it to work well for more individualized teaching of (subject), or--on the other hand--occurrences which you consider to typify the reasons for its not working well for some students.

In recalling specific incidents of this type, these four questions may be of help:

1. What were the circumstances surrounding or leading up to the incident you feel to be particularly important?
2. What happened under these circumstances?
3. What were the consequences of this event?
4. Why do you consider this to be a particularly effective or ineffective occurrence or type of situation?

Do you have any questions about what I am asking you to do?

APPENDIX D

CRITICAL INCIDENT CATEGORIES

TABLE XXV
CRITICAL INCIDENT CATEGORIES
Students and Teachers
All Classes
(Frequency Counts and Percentages)

CRITICAL INCIDENT CATEGORY	Effective		Ineffective		Total	
	Freq.	%	Freq.	%	Freq.	%
1. PROCEDURAL ASPECTS	454	42	168	32	622	38
A. WHICH BROADENED THE OPTIONS AVAILABLE TO STUDENTS	359	32	89	17	439	27
1. Self-pacing in the course as a whole	117	11	15	3	132	8
2. Ability of the student to control the use of equipment, materials, or activities	72	7	2	.4	74	5
3. Choice of time of attendance to the open laboratory or to the scheduled class	29	3	29	6	58	4
4. Provision for doing work outside of class--either at home or in another available lab	28	3	2	.4	30	2
5. Flexibility of the starting point in the course content as determined by placement testing	24	2	1	.2	25	2
6. Lack of class discussions, lectures or other group activities	1	0	31	6	32	2
7. Availability of drill or assignment materials or resources	26	2	1	.2	27	2
8. Possibility of or actual early completion of the course requirements	22	2	0	0	22	1
9. Entry into the class after the beginning of the semester	15	1	1	.2	16	1
10. Possibility of or actual completion of the course requirements in more than one semester	6	.6	2	.4	8	.5
11. Opportunity for contact with the businesses in the community	7	.6	0	0	7	.4
12. Absence of a schedule for the completion of assignments	0	0	6	1	6	.4
13. Informality of the class atmosphere	2	.2	0	0	2	.1

TABLE XXV (Con.)

CRITICAL INCIDENT CATEGORY	Effective		Ineffective		Total	
	Freq.	%	Freq.	%	Freq.	%
I. B. WHICH PRESCRIBED THE OPTIONS AVAILABLE TO STUDENTS	104	10	79	15	183	11
14. Opportunity for group presentations or group drill to an entire class or to several students in the class. The group may be lead either by the teacher or another student	61	6	16	3	77	5
15. Requirement to re-do assignments	13	1	6	1	19	1
16. Procedure for obtaining or submitting equipment, materials or assignments	4	.4	14	3	18	1
17. Lack of readily available drill or assignment materials or resources	0	0	18	3	18	1
18. Provision of a time schedule for all of the students or for a single student in a class for the completion of assignments	9	.8	7	1	16	1
19. Existence of a scheduled class meeting time	7	.6	1	.2	8	.5
20. Length of the scheduled class period	3	.4	5	1	8	.5
21. Existence of special class organizations or groupings of students	6	.6	0	0	6	.4
22. Inability to control the use of equipment, materials, or activities	1	.1	5	1	6	.4
23. Inability to do assignments outside of class	0	0	3	.6	3	.2
24. Inflexibility in the starting point of the course content, or lack of placement	0	0	3	.6	3	.2
25. Student maintenance of individual course-achievement records	0	0	1	.2	1	.1

TABLE XXV (Con.)

CRITICAL INCIDENT CATEGORY	Effective		Ineffective		Total	
	Freq.	%	Freq.	%	Freq.	%
II. ASPECTS ASSOCIATED DIRECTLY WITH INSTRUCTIONAL MATERIALS OR METHODS	260	24	124	24	384	24
26. Drills, assignment materials or activities--their format, organization, general content, or manner of use	103	10	30	6	133	8
27. Opportunity to study specific and/or selected topics	54	5	9	2	63	4
28. Slide-tape materials, taped lectures, filmstrips, or records as instructional media (not drill)--their format, content or manner of use. (Media used primarily as a source of the course content)	33	3	24	5	57	4
29. Course textbook or written materials--their format, content or manner of use	36	3	20	4	56	4
30. Lack of adequate or clear instructions, or an undesirable pace required for their completion	0	0	22	4	22	1
31. Provision for the checking by students of assignments either by self-checking or by access to assignment keys	15	1	2	.4	17	1
32. Volume of course work required or amount of time required to do assigned work	0	0	15	3	15	.9
33. Opportunity to skip selected topics	8	.7	1	.2	9	.5
34. Adequacy or clarity of instructions, or the pace at which assignments were to be completed.	7	.7	0	0	7	.4
35. The coinciding of course content with another concurrent course	5	.5	0	0	5	.3

TABLE XXV (Con.)

CRITICAL INCIDENT CATEGORY	Effective		Ineffective		Total	
	Freq.	%	Freq.	%	Freq.	%
III. ASPECTS ASSOCIATED WITH EVALUATION MATERIALS AND METHODS	145	13	92	18	237	15
A. THEIR CONTENT OR THE OBJECTIVE BEING EVALUATED	87	8	59	12	146	9
36. Awareness by students or teachers of a specific skill or content achievement	48	4	20	4	68	4
37. Appropriateness or difficulty of the unit or final test content	25	2	17	3	42	3
38. Grading system or scale in use	5	.5	11	2	16	1
39. Appropriateness or difficulty of pretest content	7	.6	4	.8	11	.7
40. Requirement for students to do independent self-evaluations of their work	0	0	7	1	7	.4
41. Use of tests as review sources for later tests or other reference	2	.2	0	0	2	.1
B. THEIR OPERATIONAL ASPECTS	58	5	33	6	91	6
42. Manner of taking tests, such as the time designated for testing or the procedure followed in taking the test	41	4	19	4	60	4
43. Checking and return of tests	4	.2	5	1	9	.6
44. Opportunity to retake tests	8	.6	0	0	8	.5
45. Lack of alternate test forms	1	0	5	1	6	.4
46. Observation of or potential for cheating on tests	1	0	4	.8	5	.3
47. Availability of alternate test forms	3	.2	0	0	3	.2

TABLE XXV (Con.)

CRITICAL INCIDENT CATEGORY	Effective		Ineffective		Total	
	Freq.	%	Freq.	%	Freq.	%
IV. ASPECTS ASSOCIATED WITH STUDENT-TEACHER RELATIONSHIPS	176	16	81	15	257	16
48. Availability of the teacher for extra help when needed	78	7	0	0	78	5
49. Checking or evaluation of assignments with or for students	30	3	13	3	43	3
50. Lack of extra help from the teacher as needed	0	0	35	7	35	2
51. Provision of satisfactory explanations	18	2	4	.8	22	1
52. Lack of satisfactory explanations or actions on the part of the teacher	0	0	18	3	18	1
53. Absence of the teacher when not required for special assistance	8	.6	6	1	14	1
54. Provision by the teacher of special or extra materials to individual students	12	1	0	0	12	.7
55. Reports by the teacher to individual students on their progress	8	.6	4	.8	12	.7
56. Provision of special motivation to individual students	11	1	0	0	11	.7
57. Freedom or opportunity for informal talking	10	1	0	0	10	.6
58. Observation by student of a teacher's favoritism for certain students	0	0	1	.2	1	.1

TABLE XXV (Con.)

CRITICAL INCIDENT CATEGORY	Effective		Ineffective		Total	
	Freq.	%	Freq.	%	Freq.	%
V. ASPECTS ASSOCIATED WITH STUDENT-STUDENT RELATIONSHIPS	32	3	14	3	46	3
59. Opportunity for group studying or studying with another person	19	2	1	.2	20	1
60. Lack of awareness of other students' progress, or lack of group competition	6	.6	2	.4	10	.6
61. Opportunity to work around others, but not necessarily directly with them	2	.2	5	1	7	.4
62. Awareness of students' copying of assignments	0	0	4	.8	4	.2
63. Awareness of other student's progress	3	.3	0	0	3	.2
64. Requirement to have other students check an individual's work	0	0	2	.4	2	.1
VI. ASPECTS ASSOCIATED WITH THE USE OF EQUIPMENT OR OTHER INSTRUCTIONAL MEDIA	13	1	46	9	59	4
65. Unavailability of equipment or other media when needed	0	0	28	5	28	2
66. Annoyance in the use of equipment or other media	1	.1	17	3	18	1
67. Ease of use of equipment or other media	4	.4	0	0	4	.2
68. Existence of modern, sophisticated equipment	4	.4	0	0	4	.2
69. Availability of equipment or other media when needed	2	.2	0	0	2	.1
70. Opportunity to use different types or models of equipment	2	.2	0	0	2	.1
71. Amount of space available for working in the classroom	0	0	1	.2	1	.1
GRAND TOTALS	1079	100%	525	100%	1604	100%

APPENDIX E

SKILL LEVELS IN TYPEWRITING AND SHORTHAND

TABLE XXVI
TYPEWRITING SKILL ACHIEVEMENT OF STUDENTS WHO COMPLETED A COURSE
TYPEWRITING 1, 2, 3
(Gross Words Per Minute)

DISTRICT AND CITY OF SCHOOL	TYPEWRITING 1		TYPEWRITING 2		TYPEWRITING 3	
	Range of Speed	Mean Speed	Range of Speed	Mean Speed	Range of Speed	Mean Speed
5 Text-Typewriting Classes						
No. 4, Madison (N_2=11)			60-80 wpm	68 wpm		
No. 9, Milwaukee (N_1=12)	31-58 wpm	47 wpm				
No. 10, Fond du Lac (N_1=34, N_2=10)	23-71 wpm	44 wpm	43-75 wpm	57 wpm		
No. 11, Manitowoc (N_1=12, N_2=7, N_3=6)	35-60 wpm	43 wpm	37-59 wpm	49 wpm	58-75 wpm	66 wpm
No. 15, Wausau (N_1=18)	16-62 wpm	36 wpm				
5 AVT-Typewriting Classes						
No. 5, Beliot (N_1=9, N_2=26)	19-40 wpm	30 wpm	39-60 wpm	45 wpm		
No. 8, Janesville (N_1=6, N_2=8)	33-47 wpm	42 wpm	35-62 wpm	50 wpm		
No. 8, Waukesha (N_1=48, N_2=21, N_3=1)	20-56 wpm	41 wpm	37-80 wpm	53 wpm	68 wpm	68 wpm
No. 11, Sheboygan						
Regular (N_1=13, N_2=20)	33-61 wpm	42 wpm	45-74 wpm	60 wpm		
Medical (N=57)	40-77 wpm	50 wpm				
No. 12 Appleton (N_1=35, N_2-19)	23-84 wpm	46 wpm	45-76 wpm	62 wpm		

TABLE XXVII

SHORTHAND SKILL ACHIEVEMENT OF STUDENTS WHO COMPLETED A COURSE

SHORTHAND 1, 2, 3

(Highest Dictation Recording Speed)

DISTRICT AND CITY OF SCHOOL	SHORTHAND 1		SHORTHAND 2		SHORTHAND 3	
	Range of Speed	Mean Speed	Range of Speed	Mean Speed	Range of Speed	Mean Speed
No. 9, Milwaukee (N_1=10)	40-80 wpm	50 wpm				
No. 11, Sheboygan (N_1=10, N_3=8)	50-70 wpm	60 wpm			80-120 wpm	100 wpm
No. 11, Manitowoc (N_1=5, N_2=4, N_3=4)	50-80 wpm	60 wpm	80-100 wpm	90 wpm	100-120 wpm	110 wpm

ED 069851

TECHNICAL APPENDIX TO

FINAL REPORT

Project No. 19-008-151-222

AN EVALUATION THROUGH FIELD TESTING OF INDIVIDUALIZED INSTRUCTION MATERIALS IN WISCONSIN POST-SECONDARY INSTITUTES

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THE UNIVERSITY OF WISCONSIN
MADISON

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
Madison, Wisconsin

August, 1972

VT 017093

TECHNICAL APPENDIX

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TABLE T-I
PREVIOUS COURSE EXPERIENCE AND
COURSE COMPLETION STATUS
BY SUBJECT AREA
(Frequency Counts)

SUBJECT AREA AND PREVIOUS COURSE EXPERIENCE	COMPLETION STATUS						
	A	B	C	D	INC*	W**	TOTAL
Accounting							47
Yes	15	5	1	0	3	0	24
No	5	2	5	0	11	0	23
Beg. Shorthand							61
Yes	5	2	1	1	3	2	14
No	5	7	3	1	15	16	47
AVT Typewriting							521
Yes	78	94	59	2	103	77	413
No	6	18	4	1	43	36	108
Text Typewriting							175
Yes	15	41	24	5	32	21	138
No	2	3	14	1	15	2	37
TOTAL	192	201	126	11	281	159	970
Yes	123	158	95	8	150	105	639
No	69	43	31	3	131	54	331

*INC = Incompletes
**W = Withdrawal

TABLE T-II
PREVIOUS COURSE EXPERIENCE AND
COURSE COMPLETION STATUS
BY SUBJECT AREA
(Row Percentages)

	COMPLETION STATUS - PERCENTAGES						
SUBJECT AREA AND PREVIOUS COURSE EXPERIENCE	A %	B %	C %	D %	INC* %	W** %	TOTAL
Accounting							47
Yes	63	21	4	0	12	0	100%
No	22	9	21	0	48	0	100%
Beg. Shorthand							61
Yes	36	14	7	7	22	14	100%
No	11	15	6	2	32	34	100%
AVT Typewriting							521
Yes	19	23	14	1	25	18	100%
No	5	17	4	1	40	33	100%
Text Typewriting							175
Yes	11	30	17	4	23	15	100%
No	5	8	38	3	41	5	100%

*INC = Incompletes
**W = Withdrawal

TABLE T-III
TEACHER CATEGORIZATION OF STUDENTS
WITHIN SINGLE SUBJECT AREAS
ACROSS VTAE DISTRICTS
(Frequency Counts and Row Percentages)

SUBJECT AREA AND VTAE DISTRICT	TEACHER CATEGORIZATION			TOTAL
	POSITIVE	NEUTRAL	NEGATIVE	
Accounting				
No. 3 (Fennimore)	7 (35%)	9 (45%)	4 (20%)	20 (100%)
No. 9 (Milwaukee)	17 (63%)	3 (11%)	7 (26%)	27 (100%)
Business Math				
No. 3 (Fennimore)	2 (8%)	7 (29%)	15 (63%)	24 (100%)
No. 9 (Milwaukee)	16 (42%)	11 (29%)	11 (29%)	38 (100%)
Marketing				
No. 4 (Madison)	21 (39%)	8 (15%)	25 (46%)	54 (100%)
No. 6 (Kenosha)	20 (95%)	0 (0%)	1 (5%)	21 (100%)
No. 8 (Waukesha) (Fashion Fabrics)	7 (50%)	5 (36%)	2 (14%)	14 (100%)
No. 8 (Waukesha) (Non-Textiles)	8 (30%)	13 (48%)	6 (22%)	27 (100%)
Beg. Shorthand				
No. 9 (Milwaukee)	3 (10%)	12 (39%)	16 (51%)	31 (100%)
No. 11 (Sheboygan)	12 (75%)	1 (6%)	3 (19%)	16 (100%)
No. 11 (Manitowoc)	5 (26%)	10 (53%)	4 (21%)	19 (100%)
Adv. Shorthand				
No. 11 (Sheboygan)	7 (64%)	4 (36%)	0 (0%)	11 (100%)
No. 11 (Manitowoc)	6 (40%)	7 (47%)	2 (13%)	15 (100%)
AVT Typewriting				
No. 5 (Beloit)	35 (38%)	29 (31%)	29 (31%)	93 (100%)
No. 5 (Janesville)	9 (27%)	15 (44%)	10 (29%)	34 (100%)
No. 8 (Waukesha)	24 (17%)	57 (40%)	60 (43%)	141 (100%)
No. 11 (Sheboygan)	88 (52%)	65 (39%)	15 (9%)	168 (100%)
No. 12 (Appleton)	68 (65%)	24 (23%)	12 (12%)	104 (100%)
Text Typewriting				
No. 4 (Madison)	8 (57%)	4 (29%)	2 (14%)	14 (100%)
No. 9 (Milwaukee)	32 (62%)	14 (27%)	6 (11%)	52 (100%)
No. 10 (Fond du Lac)	24 (46%)	14 (27%)	14 (27%)	52 (100%)
No. 11 (Manitowoc)	21 (32%)	12 (18%)	33 (50%)	66 (100%)
No. 15 (Wausau)	13 (72%)	3 (17%)	2 (11%)	18 (100%)
TOTAL	453 (43%)	327 (31%)	279 (26%)	1059 (100%)

TABLE T-IV
PREVIOUS COURSE EXPERIENCE AND
TEACHER CATEGORIZATION OF STUDENTS
(Frequency Counts and Row Percentages)

	TEACHER CATEGORIZATION			
PREVIOUS COURSE EXPERIENCE	POSITIVE	NEUTRAL	NEGATIVE	TOTAL
Yes	292 (45%)	196 (31%)	151 (24%)	639 (100%)
No	128 (39%)	94 (28%)	109 (33%)	331 (100%)
TOTAL	420 (43%)	290 (30%)	260 (27%)	970 (100%)

Chi Square = 9.79 (2 Degrees of Freedom) Sign. at .01 Level

TABLE T-V
STUDENT HOURS REQUIRED DURING ONE SEMESTER
IN THE OPEN LABORATORY AVT TYPEWRITING COURSE
DISTRICT NO. 5
BELOIT
(Frequency Counts)

	COMPLETION STATUS						
HOUR RANGE	A	B	C	D	INC*	W**	TOTAL
0- 20	0	1	5	0	2	37	45
21- 40	0	0	6	0	7	7	20
41- 60	2	4	3	0	1	1	11
61- 80	4	4	1	0	2	1	12
81-100	2	3	0	0	0	0	5
TOTAL	8	12	15	0	12	46	93

Chi Square = 81.72 (16 Degrees of Freedom) Sign. at .01 Level
*INC = Incompletes
**W = Withdrawal

TABLE T-VI
STUDENT HOURS REQUIRED DURING ONE SEMESTER
IN THE OPEN LABORATORY AVT TYPEWRITING COURSE
DISTRICT NO. 5
JANESVILLE
(Frequency Counts)

	COMPLETION STATUS						
HOUR RANGE	A	B	C	D	INC*	W**	TOTAL
0- 20	0	0	0	0	7	0	7
21- 40	1	0	0	0	1	0	2
41- 60	0	1	0	0	7	0	8
61- 80	3	2	0	0	4	0	9
81-100	1	5	0	1	1	0	8
TOTAL	5	8	0	1	20	0	34

Chi Square = 23.40 (12 Degrees of Freedom) Not Sign. at .01 Level
*INC = Incompletes
**W = Withdrawal

TABLE T-VII
STUDENT HOURS REQUIRED DURING ONE SEMESTER
IN THE OPEN LABORATORY AVT TYPEWRITINC COURSE
DISTRICT NO. 8
WAUKESHA
(Frequency Counts)

HOUR RANGE	COMPLETION STATUS						
	A	B	C	D	INC*	W**	TOTAL
0- 20	0	0	3	0	3	20	26
21- 40	2	1	3	1	12	14	33
41- 60	6	13	6	0	9	2	36
61- 80	8	10	4	0	9	0	31
81-100	2	8	1	1	1	0	13
101-120	0	1	0	0	1	0	2
TOTAL	18	33	17	2	35	36	141

Chi Square = 94.25 (25 Degrees of Freedom) Sign. at .01 Level
*INC = Incompletes
**W = Withdrawal

TABLE T-VIII
STUDENT HOURS REQUIRED DURING ONE SEMESTER
IN THE OPEN LABORATORY AVT TYPEWRITING COURSE
DISTRICT NO. 11
SHEBOYGAN
(Frequency Counts)

	COMPLETION STATUS						
HOUR RANGE	A	B	C	D	INC*	W**	TOTAL
0- 20	0	1	1	0	10	21	33
21- 40	0	5	2	0	8	6	21
41- 60	6	13	6	0	17	3	45
61- 80	4	13	9	0	4	1	31
81-100	2	5	10	0	3	1	21
101-120	3	3	1	0	0	0	7
121-140	1	0	1	0	3	0	5
141-160	0	1	0	0	1	0	2
161-180	0	3	0	0	0	0	3
TOTAL	16	44	30	0	46	32	168

Chi Square = 113.12 (32 Degrees of Freedom) Sign. at .01 Level
*INC = Incompletes
**W = Withdrawal

TABLE T-IX
STUDENT HOURS REQUIRED DURING ONE SEMESTER
IN THE OPEN LABORATORY AVT TYPEWRITING COURSE
DISTRICT NO. 12
APPLETON
(Frequency Counts)

	COMPLETION STATUS						
HOUR RANGE	A	B	C	D	INC*	W**	TOTAL
0- 20	0	3	0	0	12	5	20
21- 40	6	1	1	0	13	1	22
41- 60	11	2	0	0	13	0	26
61- 80	10	6	0	0	6	0	22
81-100	8	0	0	0	0	0	8
101-120	0	2	0	0	1	0	3
121-140	2	0	0	0	0	0	2
141-160	0	1	0	0	0	0	1
TOTAL	37	15	1	0	45	6	104

Chi Square = 67.74 (28 Degrees of Freedom) Sign. at .01 Level
*INC = Incompletes
**W = Withdrawal

TABLE T-X
STUDENT HOUR RANGES REQUIRED WITHIN ONE SEMESTER
BY STUDENTS WITH ADVANCED STANDING AND
STUDENTS WITHOUT ADVANCED STANDING
(Frequency Counts and Column Percentages)

	ADVANCED STANDING		
HOUR RANGES	NO	YES	TOTAL
0- 20	118 (22%)	23 (17%)	141
21- 40	100 (19%)	27 (20%)	127
41- 60	122 (23%)	43 (32%)	165
61- 80	115 (22%)	22 (16%)	137
81-100	58 (11%)	4 (3%)	62
101-120	11 (2%)	7 (5%)	18
121-140	5 (1%)	6 (4%)	11
141-160	1 (0%)	2 (2%)	3
161-180	2 (0%)	1 (1%)	3
TOTAL	532 (100%)	135 (100%)	667

Chi Square = 29.90 (8 Degrees of Freedom) Sign. at .01 Level

TABLE T-XI
CATEGORIES OF CRITICAL INCIDENTS REPORTED BY STUDENTS
IN EACH SUBJECT AREA BY QUALITY OF INCIDENT
(Frequency Counts)

INCIDENT CATEGORY AND QUALITY	SUBJECT							
	Acctg.	Business Math.	Mktg.	Beg. Shorthand	Adv. Shorthand	AVT Typing	Text Typing	TOTAL
I-A*								
Effective	21	14	49	33	14	89	71	291
Ineffective	10	2	12	1	6	21	5	57
I-B								
Effective	10	0	20	9	5	6	24	74
Ineffective	2	0	21	1	1	8	27	60
II								
Effective	13	19	65	16	10	41	64	228
Ineffective	2	3	21	6	1	39	32	95
III-A								
Effective	2	3	31	2	2	7	21	68
Ineffective	0	1	9	1	3	11	12	37
III-B								
Effective	6	7	10	3	0	6	10	42
Ineffective	3	1	0	3	1	5	3	16
IV								
Effective	17	11	29	7	1	25	39	129
Ineffective	7	4	7	2	2	21	6	49
V								
Effective	6	2	6	0	0	10	3	27
Ineffective	2	0	1	0	1	1	0	5
VI								
Effective	0	0	0	0	3	5	4	12
Ineffective	0	0	2	0	2	28	4	36
TOTAL	101	67	283	84	52	314	325	1,226

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XII
CATEGORIES OF CRITICAL INCIDENTS REPORTED BY STUDENTS
IN EACH SUBJECT AREA BY QUALITY OF INCIDENT
(Column Percentages)

INCIDENT CATEGORY AND QUALITY	SUBJECT						
	Acctg.	Business Math.	Mktg.	Beg. Shorthand	Adv. Shorthand	AVT Typing	Text Typing
I-A*							
Effective	21%	21%	17%	39%	27%	28%	22%
Ineffective	10%	3%	4%	1%	11%	7%	2%
I-B							
Effective	10%	0%	7%	11%	9%	2%	7%
Ineffective	2%	0%	7%	1%	2%	2%	8%
II							
Effective	13%	28%	23%	19%	19%	13%	20%
Ineffective	2%	4%	7%	7%	2%	10%	10%
III-A							
Effective	2%	5%	11%	2%	4%	2%	6%
Ineffective	0%	2%	3%	1%	6%	3%	4%
III-B							
Effective	6%	10%	4%	4%	0%	2%	3%
Ineffective	3%	2%	0%	4%	2%	2%	1%
IV							
Effective	16%	16%	10%	9%	2%	8%	12%
Ineffective	7%	6%	3%	2%	4%	7%	2%
V							
Effective	6%	3%	2%	0%	0%	3%	1%
Ineffective	2%	0%	1%	0%	2%	0%%	0%
VI							
Effective	0%	0%	0%	0%	6%	2%	1%
Ineffective	0%	0%	1%	0%	4%	9%	1%
TOTAL	100%	100%	100%	100%	100%	100%	100%

See page 70 of the main report for a description of the critical incident categories.

TABLE T-XIII
CATEGORIES OF CRITICAL INCIDENTS REPORTED BY TEACHERS
IN EACH SUBJECT AREA BY QUALITY OF INCIDENT
(Frequency Counts)

INCIDENT CATEGORY AND QUALITY	SUBJECT							
	Acctg.	Business Math.	Mktg.	Beg. Shorthand	Adv. Shorthand	AVT Typing	Text Typing	TOTAL
I-A*								
Effective	9	4	8	5	3	21	9	59
Ineffective	2	3	10	7	1	4	5	32
I-B								
Effective	2	0	3	4	6	2	13	30
Ineffective	1	1	6	0	2	4	4	18
II								
Effective	1	2	7	1	2	9	10	32
Ineffective	3	4	1	1	2	13	5	29
III-A								
Effective	1	0	2	0	0	8	8	19
Ineffective	1	3	1	2	0	13	5	22
III-B								
Effective	0	0	4	0	2	6	3	15
Ineffective	1	0	6	0	0	6	4	17
IV								
Effective	3	2	3	0	1	19	17	45
Ineffective	4	4	1	2	1	18	2	32
V								
Effective	2	1	0	0	0	0	2	5
Ineffective	2	2	5	0	0	0	0	9
VI								
Effective	0	0	0	0	0	1	0	1
Ineffective	0	0	0	0	1	9	0	10
TOTAL	32	26	57	22	21	130	87	375

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XIV
CATEGORIES OF CRITICAL INCIDENTS REPORTED BY TEACHERS
IN EACH SUBJECT AREA BY QUALITY OF INCIDENT
(Column Percentages)

INCIDENT CATEGORY AND QUALITY	SUBJECT						
	Acctg.	Business Math.	Mktg.	Beg. Shorthand	Adv. Shorthand	AVT Typing	Text Typing
I-A*							
Effective	28%	15%	14%	22%	14%	16%	10%
Ineffective	6%	12%	18%	32%	5%	3%	6%
I-B							
Effective	6%	0%	5%	18%	29%	1%	15%
Ineffective	3%	4%	10%	0%	9%	3%	5%
II							
Effective	3%	8%	12%	5%	9%	7%	11%
Ineffective	10%	15%	2%	5%	9%	10%	6%
III-A							
Effective	3%	0%	4%	0%	0%	6%	9%
Ineffective	3%	11%	2%	9%	0%	8%	6%
III-B							
Effective	0%	0%	7%	0%	10%	5%	3%
Ineffective	3%	0%	10%	0%	0%	5%	5%
IV							
Effective	10%	8%	5%	0%	5%	14%	20%
Ineffective	13%	15%	2%	9%	5%	14%	2%
V							
Effective	6%	4%	0%	0%	0%	0%	2%
Ineffective	6%	8%	9%	0%	0%	0%	0%
VI							
Effective	0%	0%	0%	0%	0%	1%	0%
Ineffective	0%	0%	0%	0%	5%	7%	0%
TOTAL	100%	100%	100%	100%	100%	100%	100%

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XV
CRITICAL INCIDENT CATEGORIES
ACROSS VTAE DISTRICTS
ACCOUNTING
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT No. 3 Fennimore	DISTRICT No. 9 Milwaukee	Total
I-A*			
Effective	8 (14%)	22 (29%)	30
Ineffective	9 (16%)	3 (4%)	12
I-B			
Effective	3 (5%)	9 (12%)	1[illegible]
Ineffective	3 (5%)	0 (0%)	3
II			
Effective	3 (5%)	11 (15%)	14
Ineffective	3 (5%)	2 (3%)	5
III-A			
Effective	0 (0%)	3 (4%)	3
Ineffective	1 (2%)	0 (0%)	1
III-B			
Effective	2 (4%)	4 (5%)	6
Ineffective	4 (7%)	0 (0%)	4
IV			
Effective	3 (5%)	17 (23%)	20
Ineffective	10 (17%)	1 (1%)	11
V			
Effective	6 (10%)	2 (3%)	8
Ineffective	3 (5%)	1 (1%)	4
VI			
Effective	0 (0%)	0 (0%)	0
Ineffective	0 (0%)	0 (0%)	0
TOTAL	58 (100%)	75 (100%)	133

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XVI
CRITICAL INCIDENT CATEGORIES
ACROSS VTAE DISTRICTS
BUSINESS MATH
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT No. 3 Fennimore	DISTRICT No. 9 Milwaukee	Total
I-A*			
Effective	1 (4%)	17 (25%)	18
Ineffective	3 (11%)	2 (3%)	5
I-B			
Effective	0 (0%)	0 (0%)	0
Ineffective	1 (4%)	0 (0%)	1
II			
Effective	2 (8%)	19 (28%)	21
Ineffective	4 (15%)	3 (4%)	7
III-A			
Effective	0 (0%)	3 (5%)	3
Ineffective	3 (11%)	1 (2%)	4
III-B			
Effective	2 (8%)	5 (7%)	7
Ineffective	1 (4%)	0 (0%)	1
IV			
Effective	1 (4%)	12 (18%)	13
Ineffective	6 (23%)	2 (3%)	8
V			
Effective	0 (0%)	3 (5%)	3
Ineffective	2 (8%)	0 (0%)	2
VI			
Effective	0 (0%)	0 (0%)	0
Ineffective	0 (0%)	0 (0%)	0
TOTAL	26 (100%)	67 (100%)	93

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XVII
CRITICAL INCIDENT CATEGORIES
ACROSS VTAE DISTRICTS
MARKETING
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT No. 4 Madison	No. 6 Kenosha	No. 8 Waukesha	Total
I-A*				
Effective	9 (11%)	24 (20%)	24 (18%)	57
Ineffective	14 (16%)	0 (0%)	8 (6%)	22
I-B				
Effective	15 (17%)	8 (7%)	0 (0%)	23
Ineffective	12 (14%)	3 (2%)	12 (9%)	27
II				
Effective	14 (16%)	32 (27%)	26(19%)	72
Ineffective	5 (6%)	4 (3%)	13 (10%)	22
III-A				
Effective	4 (5%)	19 (16%)	10 (7%)	33
Ineffective	0 (0%)	2 (2%)	8 (6%)	10
III-B				
Effective	0 (0%)	2 (2%)	12 (9%)	14
Ineffective	0 (0%)	0 (0%)	6 (5%)	6
IV				
Effective	2 (2%)	21 (17%)	9 (7%)	32
Ineffective	7 (8%)	1 (1%)	0 (0%)	8
V				
Effective	1 (1%)	4 (3%)	1 (1%)	6
Ineffective	2 (2%)	0 (0%)	4 (3%)	6
VI				
Effective	0 (0%)	0 (0%)	0 (0%)	0
Ineffective	2 (2%)	0 (0%)	0 (0%)	2
TOTAL	87 (100%)	120 (100%)	133 (100%)	340

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XVIII
CRITICAL INCIDENT CATEGORIES
ACROSS TWO DISTRICTS
BEGINNING SHORTHAND
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT No. 9 Milwaukee	DISTRICT No. 11 Sheboygan & Manitowoc	Total
I-A*			
Effective	12 (21%)	26 (53%)	38
Ineffective	6 (11%)	2 (4%)	8
I-B			
Effective	6 (11%)	7 (14%)	13
Ineffective	1 (2%)	0 (0%)	1
II			
Effective	9 (16%)	7 (15%)	17
Ineffective	6 (11%)	1 (2%)	7
III-A			
Effective	1 (2%)	1 (2%)	2
Ineffective	3 (5%)	0 (0%)	3
III-B			
Effective	1 (2%)	2 (4%)	3
Ineffective	3 (5%)	0 (0%)	3
IV			
Effective	5 (9%)	2 (4%)	7
Ineffective	3 (5%)	1 (2%)	4
V			
Effective	0 (0%)	0 (0%)	0
Ineffective	0 (0%)	0 (0%)	0
VI			
Effective	0 (0%)	0 (0%)	0
Ineffective	0 (0%)	0 (0%)	0
TOTAL	56 (100%)	49 (100%)	105

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XIX
CRITICAL INCIDENT CATEGORIES
ACROSS VTAE DISTRICTS
ADVANCED SHORTHAND
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT No. 11 Sheboygan	DISTRICT No. 11 Manitowoc	Total
I-A*			
Effective	5 (13%)	12 (40%)	17
Ineffective	4 (10%)	3 (9%)	7
I-B			
Effective	8 (20%)	3 (9%)	11
Ineffective	2 (5%)	1 (3%)	3
II			
Effective	9 (23%)	3 (9%)	12
Ineffective	3 (7%)	0 (0%)	3
III-A			
Effective	0 (0%)	2 (6%)	2
Ineffective	3 (7%)	0 (0%)	3
III-B			
Effective	1 (2%)	1 (3%)	2
Ineffective	1 (2%)	0 (0%)	1
IV			
Effective	1 (2%)	1 (3%)	2
Ineffective	1 (2%)	2 (6%)	3
V			
Effective	0 (0%)	0 (0%)	0
Ineffective	0 (0%)	1 (3%)	1
VI			
Effective	2 (5%)	1 (3%)	3
Ineffective	1 (2%)	2 (6%)	3
TOTAL	41 (100%)	32 (100%)	73

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XX
CRITICAL INCIDENT CATEGORIES
ACROSS VTAE DISTRICTS
AVT TYPEWRITING
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT				Total
	No. 5 Beloit & Janesville	No. 8 Waukesha	No. 11 Sheboygan	No. 12 Appleton	
I-A*					
Effective	29 (17%)	14 (22%)	23 (24%)	44 (36%)	110
Ineffective	4 (2%)	6 (10%)	7 (7%)	8 (6%)	25
I-B					
Effective	1 (1%)	3 (5%)	2 (2%)	2 (2%)	8
Ineffective	3 (2%)	3 (5%)	2 (2%)	5 (4%)	13
II					
Effective	15 (9%)	4 (6%)	14 (15%)	17 (14%)	50
Ineffective	25 (15%)	6 (10%)	5 (5%)	7 (6%)	43
III-A					
Effective	4 (2%)	5 (8%)	2 (2%)	4 (3%)	15
Ineffective	10 (6%)	6 (10%)	1 (1%)	4 (3%)	21
III-B					
Effective	6 (4%)	0 (0%)	6 (6%)	1 (1%)	13
Ineffective	6 (4%)	1 (2%)	2 (2%)	2 (2%)	11
IV					
Effective	13 (8%)	4 (6%)	13 (14%)	15 (12%)	45
Ineffective	21 (13%)	6 (10%)	4 (4%)	8 (7%)	39
V					
Effective	2 (1%)	1 (2%)	4 (4%)	3 (2%)	10
Ineffective	1 (1%)	0 (0%)	0 (0%)	0 (0%)	1
VI					
Effective	4 (2%)	0 (0%)	1 (1%)	1 (1%)	6
Ineffective	23 (14%)	3 (4%)	9 (10%)	2 (2%)	37
TOTAL	167 (100%)	62 (100%)	95 (100%)	123 (100%)	447

*See page 70 of the main report for a description of the critical incident categories.

TABLE T-XXI
CRITICAL INCIDENT CATEGORIES
ACROSS VTAE DISTRICTS
TEXT TYPEWRITING
(Frequency Counts and Column Percentages)

INCIDENT CATEGORY AND QUALITY	DISTRICT					
	No. 4 Madison	No. 9 Milwaukee	No. 10 Fond du Lac	No. 11 Manitowoc	No. 15 Wausau	Total
I-A*						
Effective	5 (5%)	12 (26%)	41 (30%)	11 (23%)	11 (15%)	80
Ineffective	2 (2%)	1 (2%)	1 (1%)	5 (10%)	1 (2%)	10
I-B						
Effective	11 (10%)	3 (7%)	13 (10%)	2 (4%)	8 (11%)	37
Ineffective	12 (11%)	3 (7%)	10 (7%)	0 (0%)	6 (8%)	31
II						
Effective	25 (23%)	8 (13%)	21 (15%)	4 (8%)	16 (22%)	74
Ineffective	17 (16%)	2 (4%)	9 (7%)	7 (14%)	2 (3%)	37
III-A						
Effective	10 (9%)	1 (2%)	10 (7%)	3 (6%)	5 (7%)	29
Ineffective	7 (7%)	1 (2%)	8 (6%)	1 (2%)	0 (0%)	17
III-B						
Effective	1 (1%)	0 (0%)	6 (4%)	3 (6%)	3 (4%)	13
Ineffective	2 (2%)	0 (0%)	1 (1%)	3 (6%)	1 (2%)	7
IV						
Effective	9 (8%)	11 (24%)	14 (10%)	8 (17%)	14 (19%)	56
Ineffective	4 (4%)	1 (2%)	0 (0%)	1 (2%)	2 (3%)	8
V						
Effective	0 (0%)	2 (4%)	2 (1%)	0 (0%)	1 (1%)	5
Ineffective	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
VI						
Effective	0 (0%)	0 (0%)	2 (1%)	0 (0%)	2 (3%)	4
Ineffective	2 (2%)	1 (2%)	0 (0%)	1 (2%)	0 (0%)	4
TOTAL	107 (100%)	46 (100%)	138 (100%)	49 (100%)	72 (100%)	412

*See page 70 of the main report for a description of the critical incident categories.